ESTABLISHED IN 1872

PAPER TRADE JOURNAL

With Which Is Combined

Vol. XCII, No. 24

Thursday, June 11, 1931

# Superintendents Meet At Dayton, Ohio

## Twelfth Annual Convention of the American Pulp and Paper Mill Superintendents Association Is Largely Attended and Is A Big Success in Every Respect—Roy H. Kelly of the Marathon Paper Mills Co. Is Chosen President—George J. Bidwell Awarded Prize for Most Outstanding Contribution To the Industry

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, June 6, 1931.—The twelfth Annual Convention of the American Pulp and Paper Mill Superintendents Association which closed a three days session at the Hotel Dayton-Biltmore here today, set a high standard which future conventions will find it difficult to match. In the quality of papers read and discussions, the addresses of leading industrialists, the several new innovations, the large attendance at the business sessions, the promptness with which every part of the program was carried out, the great variety of entertainment provided and the numbers of mill executives who showed their interest in the association by their presence, it has never been equaled by any previous convention. The attendance was gratifying in view of existing business conditions, close to four hundred being present. This was the second time since the founding of the association that the annual convention has been held in Dayton, the previous one being held in 1924.

### An Efficient Committee

The success of the convention reflected the untiring efforts of the convention committee composed of Tom Harvey as chairman, H. A. Harvey secretary, and F. R. Henry, Allan Hyer, Herbert W. Server, Charles M. Server, H. T. Randall, H. C. Lindsay and Thomas H. Keogh. This committee had worked unceasingly for many months devising something new as features for the program and the general sentiment at the opening session on Thursday morning last proved their endeavors had not been in vain.

### Exhibits by Manufacturers

Among these features were the opening of an entire floor of the hotel for exhibits of manufacturers of mill machinery and equipment. Eighteen manufacturers were represented with an extensive line of their products, each having an entire room for their display, among them being Black-Clawson Company, Shartle Brothers Machine Company, Enterprise Machine Company, Lewellen Manufacturing Company, Orr Felt and Blanket Company, Dodge Manufacturing Company, Mansfield, Bolton & Kent, Duriron Company Inc., Chromium Corporation of America, A. D. Cook Inc., De Laval Company, Shuler & Benninghofen Company, Merritt Engineering & Sales Corporation, Frigidaire Corporation, Simonds Worden White Company, Timken Roller Bearing Company, Invincible Vacuum Cleaner Company, Dayton Rubber Manufacturing Company and Fidalgo Drying Systems Inc.

With the idea of assuring a large attendance at all the business sessions, one day was set apart for entertaining and Wednesday preceding the opening of the convention was given to a golf tournament at the Dayton Country Club where over one hundred members and guests were royally entertained.

### Evening Divisional Meetings

Another innovation was the holding of the Divisional meetings in the evening with a banquet served for each prior to the reading of papers and the discussions following. This seemingly radical departure from previous programs proved the conviction of its advocates as to insuring larger attendance at the divisional meetings. At each of the four meetings on Thursday evening there was a large gathering, a fine list of papers read and discussions were carried on well past retiring time.

### Cooperation the Key

The slogan of the convention was "Cooperation" and those present became so imbued with the idea that there was no difficulty in having the sessions each day, started on scheduled time with the speakers addressing good sized meetings and receiving rapt attention. The first session on Thursday morning was opened by Mr. Harvey with an address of welcome and his brevity indicated the plan of limiting a speaker to his alloted time was to be fulfilled during the sessions. President Carl Magnus introduced Rev. Phil Porter D. D. rector of Christ Episcopal Church who delivered the invocation and a memoriam for the members who had passed away during the past year. F. O. Eichelberger, Dayton City Manager, extended a further welcome in behalf of his city, presenting the proverbial key to his city. Response to his welcome was made by Fred J. Rooney.

### President Magnus Delivers Address

With these formalities disposed of President Magnus delivered his annual message in which he outlined the accomplishments of the past year, with especial reference to the enlarged interest in the Divisional meetings, the services of the Mill Service Committee and the joint Committee on educational work.

At this session the following papers were read, followed by discussion, "Application of Timken Roller Bearings to Paper Mill Equipment" by S. M. Weckstein of Timken Roller Bearing Co.," "The American Wire Cloth Industry" by A. M. Ferry, "Dayton Cog Belt Drives" by W. T. Wagner of the Dayton Rubber Mfg. Co., "The Use and Abuse of Felts" by W. U. Hanke of the Orr Felt and Blanket Co.

The paper by Mr. Ferry brought forth a lively discussion, evidencing that there was much interest in the subject of domestic and foreign wires. His positive assurance that the association of which he is secretary is not a price fixing organization and that the Bureau of Standards at Washington had decided to standardize the products of the wire industry was received with much gratification. He further clarified the situation relative to the recent additional increase in the duty on foreign wires, citing this was a voluntary act on the part of the Tariff Commission after a thorough unsolicited investigation, by their deputies, of the records of the business of the respective wire manufacturers.

### Luncheon on Thursday

During the luncheon on Thursday the members were addressed by Bennett Chapple of the American Rolling Mill Company who gave his personal version of the cause of the present depression, stating business had become stagnated as a result of the failure of industry to develop new uses for their products, broadening of their markets and the lack of new inventions which would help to provide efficiency and minimize production effort.

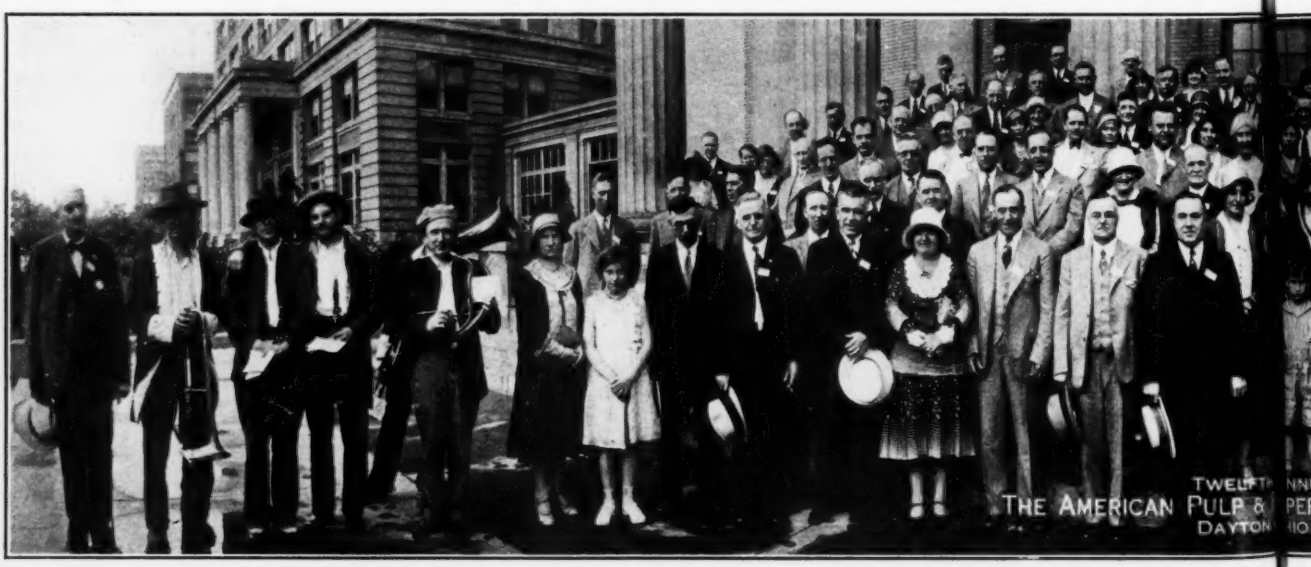
As afternoon sessions were dispensed with, on Thursday those attending the convention were entertained by the school children of Dayton who presented a "Patriotic Pageant" of the history of the United States. The sincerity with which they interpreted the various periods of progress, climaxing with a pledge of allegiance to the flag of our country was the most inspiring sight anyone could witness and aroused the emotions of everyone. After witnessing this performance a visit was paid to the plant of the National Cash Register Company where opportunity was afforded to observe the production of cash registers.

### Divisional Meetings Thursday

Thursday evening four divisional meetings were held at each of which a dinner was served and following which papers on special subjects were read and discussed. At the Sulphite and Ground Wood Division meeting presided over by H. R. Hener of the Newton Falls Paper Company and W. H. Brydges of the Bedford Pulp and Paper Company, the following papers were read and discussed "Mechanical Pulp Paper" by Levi Frolick, of Algonquin Paper Company, "The Contributing Factors Affecting Digester Linings" by A. F. Richter of Stebbins Engineering and Manufacturing Company, and "Problems Involving the Use of Iron Pyrites in Sulphite Pulp Manufacture" by Dr. Horace Freeman, President of the Sulphide Research Corporation of Canada. Those attending the meeting of the Soda and Sulphate Division presided by George M. Trostel of Champion Fibre Company discussed papers on "Kraft Qualities" by R. M. Radsch of the Appleton Machine Company and "Washing of Soda or Sulphate Pulp on Vacuum Washer" by J. H. Hobbe of United Oliver Filter Company.

At the meeting of the Book, Fine Paper and Tissue Division, having as chairman Charles Champion of Millers Falls Paper Company and H. H. Harrison of the Crystal Paper Company the papers read were those by J. H. Christina whose subject was "Fine Papers in the Pressroom"; G. A. Macklin of Beloit Works treating with the "Use of Suction Rolls on Tissue Machines"; F. K. Becker of the Bird Machine Company, "Advantages of the Centrifiner"; E. B. Ayres, Jr., of Proctor & Schwartz on "Air Driers" and J. A. Hamm of Shartle Brothers Machine Company on "The High Speed Vat for Tissue Paper."

The Board and Coarse Paper Division whose chairman was Lee Wilson of Morris Paper Mills had a round table discussion pertaining to the "Formation of Paper on Cylinder Machines," followed by a questionnaire period led by Harry Williamson of L. V. Estes Company. There were so many varying questions and opinions offered at this meeting, leading to lively discussions that it could have proceeded indefinitely with no end in sight if it were not that another day's general session was scheduled to start promptly Friday morning. This idea of hold-




PICTURE TAKEN AT THE TWELFTH ANNUAL CONVENTION OF THE AMERICAN P

ing the divisional meetings in the evening in conjunction with a dinner had a strong appeal as it gave everyone a chance to have an afternoon free at his individual disposal as well as eliminating the mens' special night the latter being provided for at the golf tournament dinner.

**Friday a Busy Day**

Friday opened as the big day of the convention, the leading features of the program being provided for this day. The business session opened with a paper by W. J. Peacock of the Northern Paper Mills on the subject of "By-Products of Paper Mill Safety." He most convincingly elaborated on the fact that "Safety" properly practised was more than a mere protection against injury, that it helped to create efficiency and a resultant better quality product. Other papers were by Robert F. Reed of the Lithographic Research Department of the University of Cincinnati, his subject being "Research and Lithographic Paper"; D. E. Lewellen whose topic was "Jordan Control" and Joe Wallace who spoke on "Team Work" as applied to the proper functioning of mill equipment and the harmony of operation which should exist with every neighboring mechanical unit.

The reports of the officers were next presented, that of Secretary Eminger showing the present membership to be six hundred and eighty an increase of thirty over that of the preceding year.

**Election of Officers**

The election of officers followed with the following selection, President, Roy H. Kelly of the Marathon Paper Mills Company, first vice President, William H. Brydges of the Bedford Pulp and Paper Company; second vice President J. Bertwell White of National Vulcanized Fibre Company; third vice president Herbert T. Randall; of Champion Coated Paper Company; fourth vice president, Killey E. Terry of S. D. Warren Company; fifth vice president Lewis E. Weiser of National Folding Box Company. Nelson R. Davis of the S. D. Warren Company was re-elected a trustee for a three year term.

**Paper Mill Visitations**

The Friday afternoon was devoted to visiting the paper mills of the Miami Valley and the plants of machinery builders in this section. The big event of the convention at least socially, was the banquet held Friday evening at which over four hundred members, guests and ladies, enjoyed not only a fine dinner and excellent entertainment but heard two of America's oustanding industrial leaders, George H. Mead, president of the Mead Corporation and C. F. Kettering vice president of the General Motors Corporation express their views as to the reason for business depression, how they could be avoided, and what can be done to assure continued prosperity. Mr. Kettering attributed present conditions to the fact that all industries had become infected with the idea of standardization which has invited cut-throat competition in all lines.

Dr. Arthur E. Morgan President of Antioch College talked on "Cooperation" and how essential it is, not only among employees and heads of business, but in all phases of life.

**Prizes Presented**

During the course of the banquet various prizes were distributed, that for the most outstanding contribution to the industry by a superintendent, a gold watch was presented to George J. Bidewell of the Riegal Paper Company. The winner of the Eastwood Golf championship cup was James R. Simpson of the Consolidated Water Power and Paper Company. The past president's medal was given to Carl Magnus, the retiring president.

**Saturday Morning Session**

The morning session Saturday completed the weeks' program and was surprisingly well attended, during which the following papers were read and discussed, "Dryer Capacity" by F. C. Stamm of the Upson Company, "Pacific Coast Hemlock Sulphite" by G. J. Armbruster of the Puget Sound Pulp and Lumber Company and "Chilled Calendar Rolls" by Joseph Stuart Vice President of the Lobdell Car Wheel Company.

The luncheon following the meeting brought the close to what is considered the most successful convention ever held by the association, one which definitely determined that its accomplishments are becoming more fully appreciated by the industry at large. A number of the papers read and discussed during the meetings are printed in the Technical section of this week's issue of the PAPER TRADE JOURNAL.

*(Continued on page 38)*

ND PAPER MILL SUPERINTENDENTS ASSOCIATION, DAYTON, OHIO, JUNE 4-6, 1931

# Activities of Fox River Valley Paper Mills

## Consolidated Water Power & Paper Co. Plans to Raise Head of Dam on Wisconsin River to Provide More Power for Stevens Point Plant—Nekoosa-Edwards Paper Co. Petitions Commission for Approval of Five Mile Creek Dam

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., June 8, 1931—In order to gain increased power for its mill at Stevens Point, Wis., the Consolidated Water Power and Paper Company, of Wisconsin Rapids, Wis., is making plans to raise the head of its dam on the Wisconsin river one and a half feet. W. F. Thiele, chief engineer, is in charge of the project.

In order to remove the possibility of damages from the backing up of the water, the company has acquired flowage rights or land by actual purchase in the section which might be covered with water. Only a portion of one of the city parks at Stevens Point is in question and the company is seeking approval of the city council on flowage rights. It is believed no obstacles will be offered, because the Consolidated is one of the largest employers in the city and has given work to one hundred men besides the regular mill crew on improvements. An offer has also been made by George W. Mead, president, to beautify a portion of the park at his own expense later.

### Submits to Recapture Clause

Having subjected the "recapture" clause of the Wisconsin water power law to the gamut of constitutionality tests all the way through the courts from local jurisdictions to the state supreme court and the United States supreme court, the Nekoosa-Edwards Paper Company, Nekoosa, Wis., has now decided to accede to its requirements. The company is petitioning the Wisconsin Railroad Commission for its approval of a dam constructed several years ago on Four Mile Creek, near Nekoosa.

The dam was built in order to impound water for "Nepco lake," the source from which the two mills of the company obtain their clear water supply. At that time the company refused to submit to the recapture clause, on the premise that the stream was not navigable. The courts held that because the stream had been used for floating logs and for smaller boats it was still navigable. Now the company is willing to submit to the recapture clause, which permits the state to condem for its own use all water sites after thirty years. The commission is expected to approve the project under these stipulations.

### Dells Paper to Redeem Bonds

Bonds of the Dells Paper and Pulp Co., Eau Claire, Wis., maturing in the years 1937, 1938 and 1939 are being called in for redemption by the company. While no announcement has been made, it is believed this issue will be refunded by a new issue at lower rates of interest. Part of the bonds will be redeemed at 103 per cent of principal and the remainder at 104 per cent.

### Shorter Working Hours Proposed

Paper mills of Wisconsin are expecting to face a proposal from the Governor of the state to shorten the hours of labor of men now employed so as to provide jobs for others. Conferences were held recently between the manufacturers and Governor Philip LaFollette to devise means of alleviating unemployment. It is now reported that the large corporations of Wisconsin must either follow the policy of employing a larger number of men for shorter periods or face the prospect of stringent laws on the part of the legislature, now in session. Unemployment insurance will be pushed to the limit, it is said, unless the situation is relieved. The paper mills have a committee preparing data to submit to the Governor at a later conference, but no definite policy has been announced.

### Acid Tower Damaged by Fire

An abandoned acid tower at the Riverside Paper Corporation, Appleton, Wis., was the source of a stubborn fire last week. Considerable damage was done but the monetary extent of the loss has not been estimated. The fire was difficult to fight because of inaccessibility to the tower at that height.

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## News of the Toronto Paper Trade

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., June 8, 1931—The tug *Conmee* recently brought a raft of 4,000 cords of pulpwood from Pigeon River to Port Arthur for the Hammermill Paper Company. of Erie, Penn. The wood was loaded on barges at Port Arthur and taken to its destination. Recent advances from Port Arthur say that the practice of loading barges at the point of production, which in this case would have been Pigeon River, has been abandoned, owing to the expense of transporting and care of men to do the work. It is found more convenient and less costly to tug the rafts to Port Arthur, loading for export at that city.

Recent advices from Ottawa say that near the Somerset Bridge in that city there is a large amount of pulpwood piled on the east side of the railway tracks, consisting of 350,000 4-foot pieces. The wood is the property of J. R. Booth, Ltd., and under ordinary conditions it would have been used in the pulp mill instead of being stacked outside. Low water, which has prevented complete operation of the mill, coupled with general business conditions, has resulted in the wood being unused. In spite of the seemingly tremendous quantity placed along the tracks, it is stated that there is only the equivalent of a month's supply when the mill is operating normally.

Fire recently destroyed about 300 cords of pulpwood which was piled along the Canadian National Railway tracks at Golden Lake, Ont. The wood was owned by farmers who had hauled it to the station.

Provincial Paper, Ltd., have sent out a very attractive mailing piece on Multifold Enamel, printed with four color plates, credited to the Canadian Pacific Railway.

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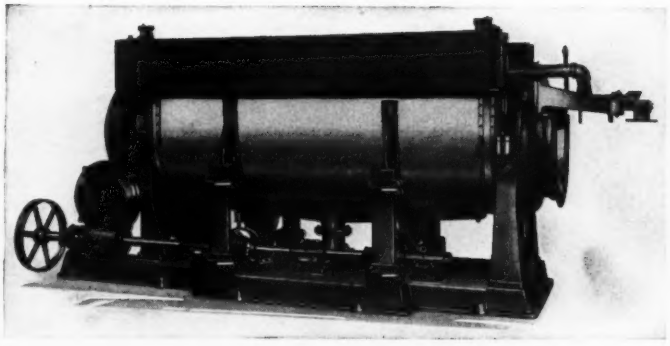
## Borregaard Co. Makes Good Report

A dividend of 5 per cent has been declared by the Borregaard Company for 1930 as compared with 6 per cent in 1929. The annual report of the Company shows earning of 6,030,000 crowns ($1,616,040) in 1930 as against 7,670,000 crowns ($2,055,600) during the preceding year. Production during 1930 was about on a level with 1929, the output of bleached sulphite having increased from 130,811 metric tons to 134,773 tons, while sulphate pulp declined from 17,398 tons to 15,477 tons and sulphite paper from 47,076 tons to 43,463 tons.

# tons of BETTER PAPER for a FEW PENNIES



**Larger Bird Screens, fitted with smaller slots, turn out better, cleaner stock at an extra cost of only a few cents per ton. Nowhere else in the mill can you get such quick and substantial improvement in paper quality at such trifling expense.**

# BIRD SCREENS

**BIRD MACHINE COMPANY** BIRD MACHINERY **South Walpole, Massachusetts**

4914

# Paper Demand Improving Slowly In Chicago

## Book Papers In Slightly Better Request Than of Late—Cover Papers Moving In Fairly Satisfactory Volume—Kraft Paper Market Continues to Exhibit Strong Undertone—Paper Board Industry Holding Its Ground

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., June 6, 1931.—A very slight improvement in general business conditions can be gleaned from comments made this week by Chicago paper executives. While the three summer months are generally conceded to be quiet ones there is a lot of preparation going on for extra sales efforts in preparation for an upturn that is more or less confidently expected in the Fall.

The kraft market continues to maintain its improved volume of the past weeks and a slightly more optimistic feeling is evident. The Chicago jobber is also a bit better satisfied with things, for the most part because of some measure of price stability. The book paper market carried slightly ahead during the week, while the cover business continued to be fair. Tissues are reported rather dull. Groundwoods continue in the doldrums and merchants are now endeavoring to forget the news print price changes in the hope of more consumer demand in the event of better general business conditions.

The board market held its ground during the week with efforts to curtail production giving promise of somewhat better days to come. Parchment papers are said to be in satisfactory shape in this section. Volume on practically all lines of paper, say reports, was slightly larger during the week. Waste papers remain quiet in sympathy with other lines.

### Purchasing Agents to Confer

Representatives of the Chicago paper industry will be fairly numerous at the sixteenth annual meeting of the National Association of Purchasing Agents, to be held in Quebec, Canada, June 8 to 11. C. M. Oberling, regional chairman of the coal committee of the national association, and purchasing agent of the Container Corporation of America, Chicago, will head the discussion at the Commodity sessions on Tuesday morning, June 9. On Tuesday morning another meeting of interest to Chicago paper men will be held, when the buyers group of pulp and paper manufacturers meet, with George W. Brown, chairman and purchasing agent of the A.P.W. Paper Company, presiding.

### Chicago Paper Association to Meet

The Chicago Paper Association will hold its next regular meeting on Tuesday evening, June 9, at the Bismarck Hotel, according to M. F. McNulty, chairman of the publicity committee. Unfinished business held over from previous meetings includes a discussion concerning the adoption of Wolf & Co., as accountants to study the cost processes of members of the association. Earl R. Beier, of Beier & Co., is chairman of a committee investigating the possibilities of this program which will probably report at the coming meeting. The dates will probably be set for the annual golf outing of the association, to take place in the very near future. This event is always a feature of the yearly program of the Association.

### Paper Salesmen's Activities

Another great event in the golfing lives of Chicago paper salesmen takes place when the second tournament of the year it held at Long Branch, Indiana, on June 18. According to Harry Johnson, of the Brown Company, chairman, a big crowd is expected to attend the one day outing. The Monday, June 1 meeting was not featured by any advance program but a considerable bit of round table discussion enlivened the meeting. The next speaker on the regular Monday programs of the Middle Western division of the Salesmen's Association of the Paper Industry will be Warren Moore, of the Brown Company who will talk on June 8. At the last Monday meeting the salesmen were again given the opportunity of hearing George K. Gibson, of Mosinese, discuss general business conditions. Mr. Gibson is always a most interesting speaker and his remarks were very well received.

### Saranac Opens Local Office

The Saranac Pulp and Paper Company now has a Chicago office, with E. H. Wolfberg, Middle Western sales manager, in charge. The branch has been opened at 160 East Illinois street. The extension was made necessary because of increased demand for Saranac products including dispenser and package napkins, paper towels, moulded pulp plates and dishes, etc.

### Container Corp. of America

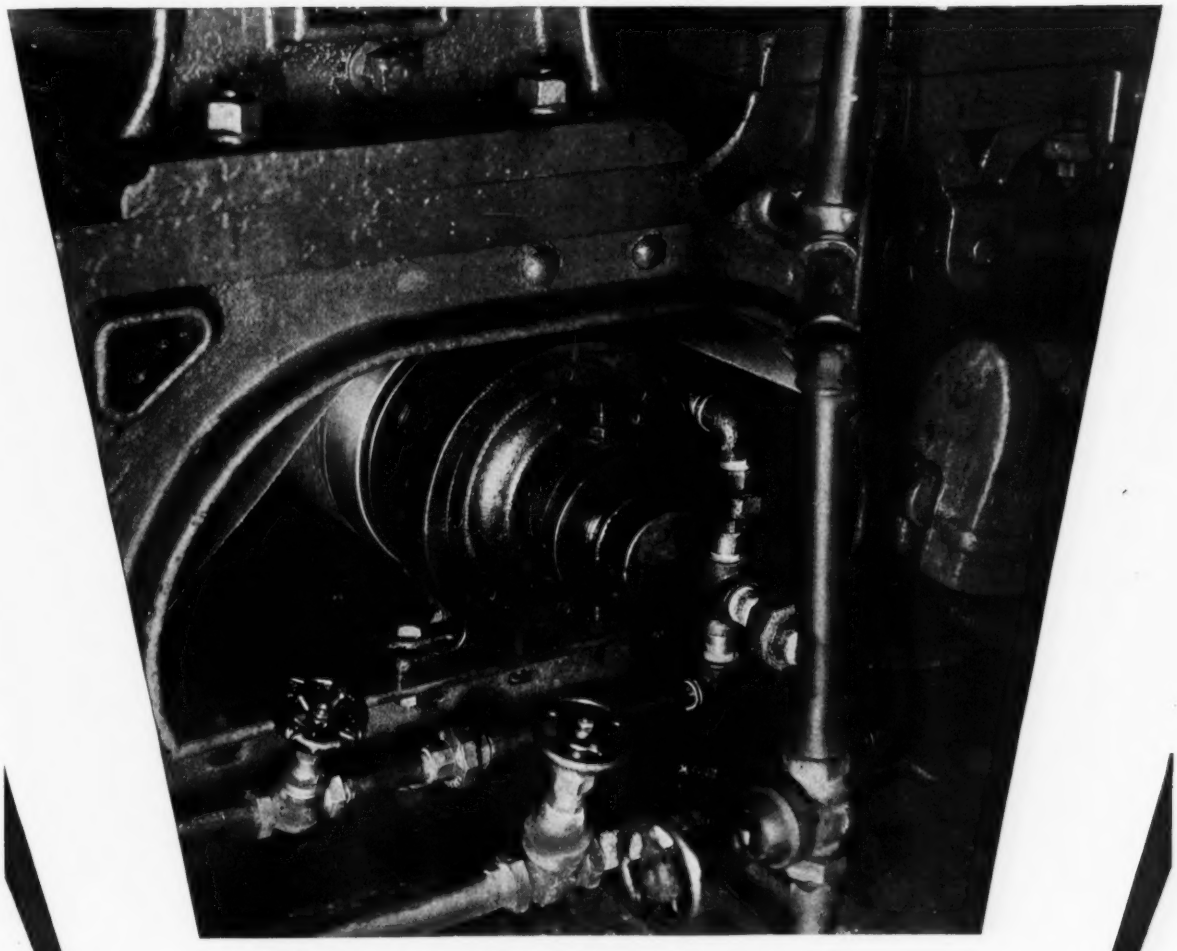
Unfavorable conditions in the container industry which have affected earnings of the Container Corporation of America for some time will in all probability result in no action being taken on the company's preferred dividend, due on July 1, according to reports given out in the Chicago paper market this week. While there still remains some time in which to declare the quarterly dividend on the 7 per cent preferred stock, say the reports, no director's meeting has yet been called and in the event that there is a meeting it has been stated that no dividend action will be taken. Although April and May operations are reported as having shown some improvement over the first three months of the year, when a net loss of $124,518 resulted, it is expected that the company will report a loss for the June quarter. Earnings of the company have declined steadily from a high of $1,409,748 in 1927 to a low of $105,167 last year. Dividends paid last year amounted to $586,071. The dividend of 30 cents a share on the class "A" common stock was omitted last April and no dividends have been paid on the company's class "B" shares since April 1, 1929, when a dividend of 15 cents, a share was paid, say the reports.

### News of the Trade

The West Virginia Pulp and Paper Company has recently sent out an advertisement on Clear Spring Text, described as "an eggshell finish book paper, brilliant white or India tint. It is admirably adapted for de luxe editions of books or business literature where a clean type impression is required." Two color line engravings feature the illustrations used in the mailing piece.

Bill Tilden, of the Chicago sales office of the Eastern Manufacturing Company, is sojourning somewhere on a two weeks vacation. Mr. Tilden began his holiday with Memorial Day and is expected back the second week in June.

# DOWNINGTOWN



## FELT CLEANING · · ·
## · · · SUCTION ROLL

A new way to keep felts clean and open; prolonging felt life. Drier sheet obtained by removing water from felts. No rubbing of felt and no drive required. Large power savings. Substitute for an ordinary felt roll. Easily installed. Ask Mr. Puett, General Manager of the Manchester Board and Paper Co., Richmond, Va., about the Downingtown Suction Felt Conditioning Roll or write us. The Downingtown Manufacturing Company, Downingtown, Pennsylvania.

# Canada Power Capital Reorganization Planned

## Feature of Plan Is Elimination of Fixed Charges for Period of Five Years—All Classes Given Opportunity for Sharing in Organization's Future Through Common Stock of New Company, Which Is Being Issued

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., June 8, 1931.—The long-discussed plan for the capital reorganization of the Canada Power and Paper Corporation, the most dominating aggregation in the Canadian news print industry, has at last been made public, and so far as can at present be gathered it is not only satisfactory from the point of view of the security holders but is looked upon as a sound constructive step for the news print industry as a whole. The feature of the plan is the elimination of fixed charges for a period of five years, during which time the company will be well able to meet any contingency which may arise in the industry. Through the common stock of a new company, which is being issued to all classes, is given an opportunity for sharing in the company's future, when the present adverse conditions of the industry have been overcome.

Put shortly, the plan provides for the reduction of fixed charges by about 50 per cent; entire relief—if necessary—from bond interest over the next five years, and elimination of preferred stock. The basis of exchange proposed under the plan on the various securities outstanding—Anglo-Canadian Pulp & Paper Corporation has not been included in the reorganization—is as follows:—

| | Securities Outstanding at Present | Proposed exchange: New Bonds | Proposed exchange: New Stock |
|---|---|---|---|
| **Bonds—** | | | |
| Belgo-Canadian Paper | $8,240,500 | $125 | 1 |
| Wayagamack Pulp & Paper | 3,527,600 | 125 | 1 |
| Port Alfred Pulp & Paper | 14,999,667 | 100 | 1 |
| St. Maurice Valley Corp.—6% | 8,836,225 | 100 | 1 |
| St. Maurice Valley Corp.—5½% | 2,000,000 | 100 | 1 |
| Anticosti Corporation | 3,000,000 | ... | 1½ |
| **Debentures—** | | | |
| Canada Power & Paper Corp. | 35,466,700 | $15 | 1½ |
| **Preferred Shares—** | | | |
| Belgo-Canadian Paper | 5,000,000 | ... | 3 |
| Port Alfred Pulp & Paper | 6,000,000 | ... | 1½ |
| St. Maurice Valley Corp. | 10,000,000 | ... | 1½ |
| Anticosti Corporation | 3,000,000 | ... | 1% |
| **Common Stock—** | | | |
| Canada Power & Paper | ..... | ... | 1/10 |

The issued capitalization of the New Company on the carrying out of the Plan will compare as follows with the existing capitalization:—

| Present Capitalization, May 1, 1931 (Excluding Anglo) | | Estimated Capitalization New Company (Excluding Anglo) | | |
|---|---|---|---|---|
| Bonds | $44,365,566.00 | Bonds | | $51,058,522.00 |
| Debentures | 35,466,700.00 | Wayagamack | | |
| Preferred | 24,000,000.00 | News Co. | $1,431,774.00 | |
| | | Ha, Ha, Bay Co. | 137,300.00 | 1,569,074.00 |
| Total | $103,832,266.00 | Total | | $52,627,596.00 |
| Common—1,521,750 Shares. no par value | | Capital Stock—1,547,141 Shares. no par value | | |

In a statement accompanying the plan the Protective Committee says that examination "has convinced the committee that, under existing conditions and having regard to volume of news print consumption and selling prices, it will be impossible, for some time, to pay any interest or dividends to holders of any of the securities or shares of the above-named companies.

"The whole system is severely handicapped by lack of working capital. The acquisition of capital assets, potentially valuable but at present non-productive, and the recent maturing of obligations assumed in that connection have very seriously depleted the current asset position and have produced an acute situation which must be promptly and effectively dealt with. Apart from other consequences it has become extremely difficult to finance ordinary manufacturing operations. The committee is convinced, therefore, that the financial structure of the entire group must be radically reduced. Fixed charges must be practically eliminated for a period of years and working capital must be built up.

"The Committee recognizes that holders of securities who forego fixed charges for five years will expect assurance as to management, especially during the period in which their right to receive interest depends on earnings and current assets. The plan provides, therefore, that the committee will nominate a majority of the new board of directors to serve for five years.

"The plan has been submitted to the bankers of the corporation (the Bank of Montreal and The Royal Bank of Canada) who have expressed their willingness, if the reorganization plan is carried out, to make banking arrangements with the new company which the committee considers will be satisfactory.

"Holders of large amounts of all classes of the securities have assured the committee that they will support the plan.

"While it is not possible to forecast accurately the operating results of the new company, the committee believes that the plan provides the foundation for success, first by creating a capital structure which will not involve burdensome fixed charges in the earlier years during which conditions will be most difficult, and secondly by permitting the accumulation of working capital.

"The unknown factors in the situation include the percentage of mill capacities for which markets may be found and the prices which will prevail, but, given prices on any fair basis and assuming the fulfilment of existing news print contracts, the committee feels warranted in expecting results which will be advantageous to those participating in the plan.

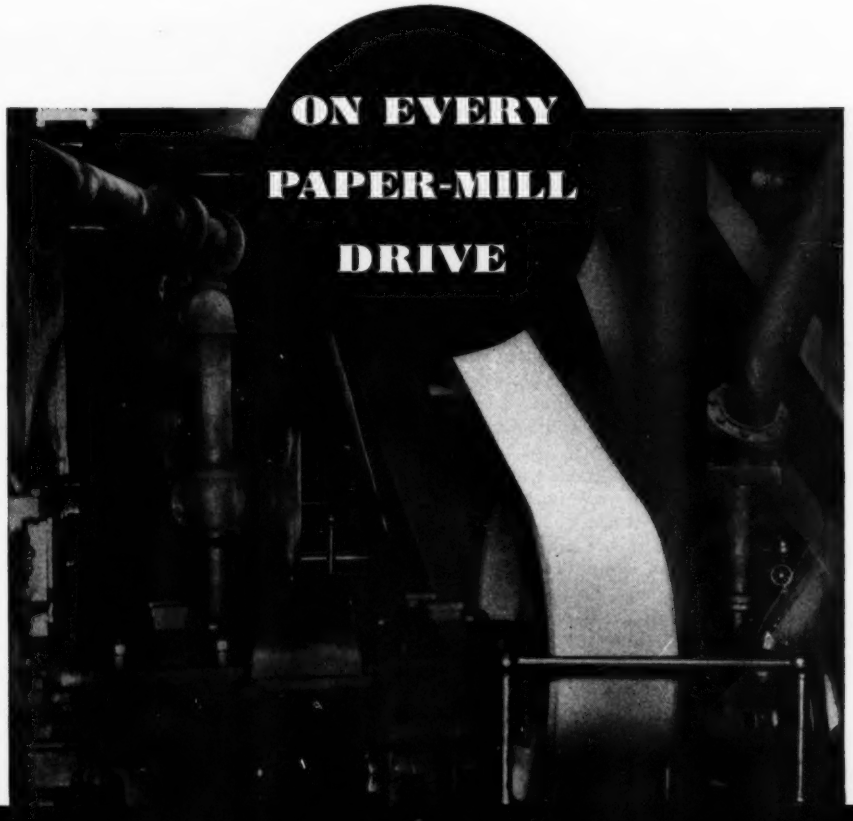
"The committee believes that no group of properties in the news print industry will be better balanced for economic production or will possess more favorable prospects than the new company, providing a reorganization is arranged along the lines indicated."

The plan is the result of some months of study by a Securities Protective Committee, under the chairmanship of the Hon. C. A. Dunning, formerly Minister of Finance for Canada.

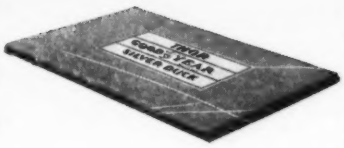
### Tariff Changes Affecting Paper Industry

The Budget submitted to the federal Parliament during the week did not contain many changes directly affecting the pulp and paper industry, but there were some items of important indirect effect. The most outstanding one of these is the imposition of a new duty of 15 cents per lb. on magazines and periodicals (formerly free), to take effect on July 1. This applies to periodicals and publications in the English or French language, consisting of magazines or fiction, unbound or paper-bound, provided that the Governor-General-in-Council may from time to time by Order-in-Council exempt from the duty specified such of the periodical publications referred to as are deemed to be of a religious, educational, or scientific character.

This new tax has occasioned much discussion, and there




# GOODYEAR TRANSMISSION BELTING WILL SAVE YOUR COSTS




It isn't only the heavy drives such as beaters that you save on with Goodyear Transmission Belting. This skilfully engineered belting holds down your costs on vacuum, centrifugal and stock pumps that can build up a big item of expense.

The Goodyear THOR Belt in the new seamless, fray-proof construction is stout at the fasteners — safe-guarded from split and fray by the heavy fabric envelope—internally fortified by silver-duck plies with a stout cushioning of rubber.

The G. T. M. — Goodyear Technical Man—knows the savings he can bring on paper machine drives. He knows Hose and Packing. He can do for you what he has done for many others in the industry. To see him, just write to Goodyear, Akron, Ohio, or Los Angeles, Cal., and ask the G.T.M. to call.

THE GREATEST NAME IN RUBBER

GOODYEAR

BELTS MOLDED GOODS HOSE PACKING

is general agreement that it will prove even more embarrassing to Canadian news dealers than to American publishers. There is some talk about the possibility of it compelling the latter to have some of their printing done in Canada, but this is not so far taken seriously. As a matter of fact, nobody can even estimate the result, and Canadian publishers do not seem to anticipate any great help from the tax. The publishers did not ask for it, and the view is that it has been instituted with the object of helping Canadian manufacturers generally by keeping out a lot of American advertising.

Imports in this category have been running at around $3,000,000 per annum, and roughly two-thirds of this are from the United States.

There are a number of popular American magazines which have about 10 per cent of their total circulation in Canada. As some of these weigh one pound or more each, and sell for 5 or 10 cents in Canada, they will now cost those who buy them 25 to 40 cents each.

As far as Canadian publishers are concerned, they complain that their costs are increased by the new tariff. Last fall the tariff on paper that some of them use was increased 400 per cent. Now with the sales tax increased from 1 to 4 per cent, and with the 50 per cent exemption of sales tax wiped out, the sales tax on paper will be increased 33 per cent, with the further provision that a new excise tax has been created of 1 per cent on all importations. Publishers here say they have to pay about 35 per cent more for paper, ink, engravings, etc., than American competitors.

Other changes of interest to the trade are a new tax of 5 cents per lb. on pictorial postcards and similar artistic cards or folders, in addition to the general tariff of 35 per cent. The general tariff on tarred paper and paper roofings (including shingles), fiber-board, straw-board sheathing and insulation manufactured wholly or in part of vegetable fibers has been raised from 25 per cent to 35 per cent. Paper hanging or wall papers, including borders or bordering, is now assessed an extra 2 cents per lb., in addition to the former general tariff of 35 per cent.

A change that will have widespread effect is that not only are goods in general taxed, but in future containers (formerly free) will also be taxed. Containers, wholly or partially manufactured from fiber-board or paper-board, when imported under the general tariff rate, will have to pay a duty of 35 per cent.

No change has been made in regard to newspapers and weekly literary papers, unbound, tailors', milliners' and mantle makers' fashion plates, when imported in sheet form with periodical trade journals. These remain free. Sandpaper, glass, or flint paper, also go unchanged, the general tariff being 25 per cent. The free import is still allowed of papier mache shoe buttons, shoe eyelets, shoe eyelets and hooks.

Another change of interest is that the postage on newspapers and periodicals with circulations above 10,000 has been raised from 1 cent per lb. to 1½ cents per lb.

### Japan as Customer for Canadian Paper

That Japan is considering obtaining her supplies of pulp from Canada instead of from European sources is the statement in an interview here by Dr. Shimojima Gumper, of Tokio, vice-president in charge of the business department of the International Cultural Society, and a prominent newspaper editor and philanthropist in his country.

Japan at the present time is faced with a shortage of pulp, Dr. Gumper explained, and is seeking new sources. In the past, Japanese mills have obtained most of their supplies of pulp from European countries, principally Scandinavia, but now the amount of pulp from these countries has been curtailed, and they find it necessary to look for new sources, he said, adding that in his opinion Canada should be able to capture the remunerative Japanese market.

### Bathurst Reports Reduced Profits

The annual report of the Bathurst Power and Paper Company shows that for the year ending December 31 last operating profits were $132,953, against $281,550 in 1929 and $411,781 in 1928, in each case after provision for depletion of limits at the rate of $1 per cord on wood cut. Deducted from this was $59,871, a write-off on idle expenses and inventory adjustments, leaving a balance of $73,082, before depreciation, which item in 1929 totalled $200,000. The balance noted was added to surplus, brought forward at $107,918, making a net profit and loss balance of $181,000. No dividends were paid during the year.

A satisfactory aspect of the showing, however, is the strong liquid position in which the company stood at the close of the fiscal year, net working capital being $2,493,426, against $2,387,933 at December 31, 1929. Current assets excell liabilities in the ratio of 21 to 1. Working capital, it will be noted, alone represents about $3.50 a share on combined A and B stock, currently quoted around $4.

## Bagley & Sewall To Make Driers

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., June 8, 1931.—Announcement is made by officials of the Bagley & Sewall Company that arrangements have been made for the manufacture of a special equipment for heat conservation in connection with the production of paper through an agreement with the Farnsworth Company, of Conshohocken, Pa. The new product is expected to increase output although no mechanical changes or enlargement in working force is contemplated just now. The decision to enter this new field was brought about through existing business conditions which make economies in paper production important, according to officials. The local concern will continue to manufacture paper mill machinery in addition to taking over the entire production of the new equipment. Engineers of the Farnsworth Company and officials are expected to spend much time here although it was announced that offices would continue to be maintained at Conshohocken.

In a statement issued by officials of the local concern the belief is expressed that the new combination contemplated will benefit not only the Bagley & Sewall and Farnsworth firms but also the paper mills which are now finding it difficult to meet present prices of the paper market, particularly as the comparitively small cost of these systems is quickly met by the savings accomplished.

## Finnish Paper Market Dull

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C. June 10, 1931—The Finnish pulp and paper market conditions continue dull with prices showing a downward tendency, according to a cable from Commercial Attache Watson, at Helsingfors.

In the chemical pulp market prices are fairly stable and mechanical pulp is showing a slight improvement, owing to the uncertainty regarding the Norwegian situation. Chemical pulp production during the first quarter of the year is believed to have been unchanged in comparison with the preceding three months, since the agreed reduction of 15 per cent has been largely counterbalanced by the increased capacity of the mills at the end of the year. Chemical pulp prices showed a downward trend while those quoted on groundwood and paper remained fairly steady.

# Don't Overlook Your Steam Costs as a source for new economy!

## *investigate the extent of the saving to be secured in this item*

The real savings are those secured by the elimination of waste. Such savings entail no sacrifice of operating efficiency, quantity or quality of production. They are the kind of savings that represent a clear and complete gain. The steam supply, for example, is one of the most prolific sources of waste in pulp and paper mills. There are many mills still struggling to supply steam for ventilation in two and three times the quantity that is necessary for their actual requirements. Here is waste—needless expense—an ideal place to secure substantial savings.

Look to your steam costs. Compare your quantity of steam used per ton with that of mills equipped to conserve on their steam supply. Consult our engineers—secure their recommendations for your particular situation. Get the facts. Satisfy yourself that the savings are there—enough to more than pay for the equipment needed to secure them. No mill executive can afford to ignore the opportunity to effect needed economies at this time. The facilities of our engineering staff are at your service. Use them now.

Briner Economizer
Ross-Wagner Recovery Systems
Ross Grinder Exhaust Systems
Ross-Grewin Vapor Removal System
Ross Machine Room Systems
Ross Vapor Absorption System
Ross Paper Machine Hoods

## J. O. ROSS ENGINEERING CORPORATION

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CHICAGO

Main Office—122 East 42nd Street
NEW YORK

311 Lewis Building
PORTLAND, ORE.

ROSS ENGINEERING OF CANADA, LIMITED
New Birks Bldg., MONTREAL

ROSS SYSTEMS
HEATING—VENTILATING—DRYING

# Demand for Paper Restricted In Philadelphia

## Both Fine and Coarse Paper Distributors Experience Quieter Trading—Although Operating on Reduced Schedule, Manufacturers Generally Continue Policy of Higher Prices—Paper Stock Market Marking Time At Present

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., June 8, 1931.—Quieter trading in the Philadelphia paper market indicated the trend of seasonal activity and the slower pace of the business spurt which marked the past month's demand. All through the various branches of the trade there was a let up in orders, with more spotty markets to contend with as the hot weather brought a specialized paper trading for those dealers handling such grades. Both fine paper and wrapping paper dealers reported quieter times, though competition continued to bring about price disturbances among distributors, despite the lagging demand.

### A Disturbing Factor

While the paper manufacturers are inclined to steady the market with firmer prices, the paper merchants have been making inroads on values, quoting prices that are below the mills and disturbing an otherwise steadier paper situation. Those dealers who have heavy stocks of standard grades on hand are involved in the price disturbances that are the bane of present day business with its higher costs of handling small lot orders. Dealers complain that such practices are disastrous to the efforts of manufacturers to stabilize the market and express need of co-operation of the merchants with the mills if business is to be carried on with profit to both. Mills generally are quoting increases of from 5 to 10 per cent over a period of six weeks or more, with the recent rise in prices of grades that have not been subjected to the former revised schedule. However, some of the paper dealers are selling at the lower prices of the early year in such grades of papers that they were able to buy at the reduced prices and which were slow sellers throughout early springtime. Manufacturers, though, not producing on increased schedule, and in fact many local mills on reduced production, continue to hold to the policy of higher prices, realizing that cuts in value do not stimulate demand under present conditions.

### High Cost of Small Orders

Paper merchants in the Philadelphia trade who are agreed with the mills that harmful cutting does not stimulate business, complain that these inroads on prices only aggravate a situation that is causing loss to the merchants reduced to small lot orders that involve heavy overhead. Hand to mouth needs of consumers mean frequent shipments and additional costs under present low prices and eat into profits so that margins of narrow range under the depression are left for the conduct of business. A few dealers report that business has held to the levels of the Maytime of 1930 and those who find a fractional advance over that period are in the minority. On the whole summary of May paper business showed a parity of rading with last year's shipments.

### Paper Stock Draggy

Paper stock dealers are dragging along pending the awakening of demand for mill replacement. There are very few grades of the better class of stocks to be found in the accumulations, but cheaper stocks are in abundance and are almost abandoned by manufacturers consuming these grades. Prices continue low for both rags and paper stock.

### Fire in Phil Fibre Plant

Fire which broke out late Friday night destroyed several hundred tons of paper stored in the metal shed storehouse of the Phil-Fibre Box Board Mills, Inc. Delaware Avenue and Tasker streets. While the fire was spectacular owing to the inflammable matter, there was little damage done to the rest of the buildings on the plot occupied by the company.

### Dill & Collins in Advertisers Exhibit

The Dill & Collins Company exhibited its line of fine papers at the exhibition opened in the Bellevue-Stratford Hotel by the Business Progress Association, Poor Richard Club, and Philadelphia Advertisers among large business enterprises held last week and to continue for some time.

### Paper and Twine Men Discuss Outing

Members of the Paper and Twine Association will discuss the coming outing to be staged on June 24, at the Baederwood Country Club in Jenkintown at the monthly session to be held June 19 at the Adelphia Hotel. President William Edkin, of the Keystone Cordage Company, will preside, while Chairman Stanleigh C. Brower, of the Entertainment Committee, and of the J. L. N. Smythe Company will review plans announced for the outing. There will be golf matches for the championship cup, tennis and quoits, with dinner and luncheon at the club house. The event this year will be strictly a stag affair.

### Envelope Manufacturers Meet

The Whiting Patterson Company, manufacturers of envelopes and dealers in fine and box makers papers, 320 North 13th street, was represented at the annual spring meeting and outing of the Envelope Manufacturers Association held at Niagara Falls in the early part of last week. Ross W. Fishburn, manager of the envelope department of the Whiting Patterson Company, journeyed to the Falls as representative of the local concern. There were several prizes awarded for the golf tournament, held on the grounds adjoining the Hotel Clifton, which followed the business session.

### J. L. N. Smythe Co. Holds Picnic

Annual outing and picnic of the J. L. N. Smythe Company staff will be held at Chestnut Hill on June 13, when the members of the organization will join the various features of the sporting program arranged with a ball game staged between groups of the associates of the company, dealers in wrapping paper and specialties at 30 South 6th street.

### Smythe Co. Adds New Lines

New lines added to the stocks of the J. L. N. Smythe Company, are the Dubltowl kraft paper towels made by the Bay West Paper Company, Green Bay, Wis., and the Ajax Sanitary Drinking Cups. The Smythe company will be joint co-distributor with the firm of S. Walter Inc., in the Philadelphia territory, for the Dubltowls. George H. Barstar, who has been desk order man for the com-

pany, is now outside specialty sales representative, handling sanitary products just added.

### Dill & Collins Exhibit

Various advertising papers manufactured by the Dill & Collins Company, Richmond and Tioga streets, will be shown at the National Industrial Advertisers Convention to be held in New York City June 15 to 17, at the Hotel New Yorker. Advertising Manager W. R. Kortkamp will supervise the exhibits and represent the manufacturers at the convention.

The Dill & Collins Company is now shipping the newly added special fancy finishes in offset papers which have been developed recently. The plater finished offset papers are made in the Dilcol offset which long has been on the market in regular stock. In the past month the manufacturers announced that the offset will be available in the plater finishes with eight fancy finishes in the new lines, made to order in sheets and cases on short notice.

President Grellet Collins, of the company, will spend the month of June touring the trade in the South and West.

### A. S. Datz & Son Starts Box Campaign

Introduction of a nation-wide campaign for broader usage of paper boxes was inaugurated by A. S. Datz & Son, of the Louis Schulman Company's Philadelphia branch at 16 South Marshall street, dealers in paper box makers' papers and supplies and fine and decorative papers, at the convention of the National Paper Box Manufacturers Association held in Washington in late May. The local paper dealers sent to the manufacturers of paper boxes, truck bill boards 42 by 84 inches, for use on trucks in the shipping departments and inside posters and office cards bearing slogans that will promote and inspire the usage of paper boxes. The first slogan sent out this month bears this inscription:—"Protect Your Purchase—Insist On Paper Boxes—Because Better Merchandise Is Aways Boxed—Boxed Merchandise Is Always Better." All supply houses are also using these bill boards on trucks and interior of business places. All supply and box making concerns throughout the country were supplied with the promotion posters and boards that were shown at the Wardman Park Hotel in Washington for the first time in an elaborate display in the Datz-Schulman exhibit. The bill boards and posters are in three color work—red, white and blue. Various slogans will be used monthly in the annual campaign. More than 400 letters have been received by Howard Marcus, of the Datz Company, from box makers throughout the country, complimenting the firm on its efforts to promote business.

### To Work for Uniformity of Papers

One of the important developments of the recent convention of the National Paper Box Manufacturers Association held in Washington, D. C., in late May, is the work to be carried on in conjunction with the Bureau of Standards of the U. S. Government and the manufacturers of fancy and glazed papers. This work has already begun and was taken up at the conference of the Glazed and Fancy Paper Manufacturers in session at the recent convention and calls for the uniformity of non-fadable and non-tarnishing papers in use among box makers. The object of this uniformity is to assure the box trade within a reasonable degree of the fading and tarnishing possibilities of paper goods and for the mills to develop certain standards in descriptions of fading and tarnishing qualities, so that when the papers are described by the manufacturers as non-fading or non-tarnishing they will have a minimum of non-fading or non-tarnishing standards.

The growing usage of boxes for window displays necessitates that the box industry have some assurance of the non-fading or non-tarnishing standards of papers in use by box makers and their customers in the consuming trades. This phase of color standardization is purely a mill proposition and the Box Manufacturers Association is working jointly with the paper industry for a solution of the problem. Those who are mostly concerned in the paper making trade are the glazed and fancy paper manufacturers supplying the box industry. The secretary of the Glazed and Fancy Paper Committee working with the National Paper Box Manufacturers Association is Leonard Houghton, 146 Chestnut street, Springfield, Mass., and with the Box Manufacturers Committee, Joseph H. Perry, Cambridge Paper Box Company, Cambridge, Mass.

### Paper Box Men at Convention

There were 250 delegates attending the National Paper Box Manufacturers Convention with 40 per cent representing the paper and machinery and other supply trades. One of the outstanding features of the program was the visit of the associates of the box and supply trades to the mills of the District of Columbia Paper Manufacturing Company, near Washington. Those from the paper and supply trades on the convention committee were W. W. Langtry, District of Columbia Paper Manufacturing Company, who conducted the group over the mills and presided at the luncheon given by its officials; Charles Matthias, Matthias Paper Corporation, Philadelphia; and Thomas Ross, of the A. M. Collins Manufacturing Company, Philadelphia.

Exhibitors from Philadelphia were: A. S. Datz & Son, A. M. Collins Manufacturing Company, Matthias Paper Corporation, A. Hartung & Co., Whiting Patterson Company, Pinco Papers Inc., Container Corporation of America and the Louis DeJonge Company. William P. Datz, Datz Manufacturing Company, Philadelphia, whose family has long been associated with the box making and paper trade of the Quaker City, was elected president of the National Paper Box Manufacturers Association.

## Boston Paper Market Fairly Active

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., June 8, 1931—A moderate volume of paper has moved in this market during the last week. Some dealers note that May was a good month, and that June has sustained the same amount of interest. In some quarters the fine paper market is reported as rather spotty or "worse than spotty" and only 75 per cent of normal, but with indications of a betterment in business generally, though exceedingly gradual, the trade is optimistic as a whole.

It is felt that the usual summer quiet will not appear so pronounced this year because of a preceding period of dragginess, and also because paper firms "will be digging in" more than ordinarily. Some improvement has developed in wrapping lines. The interest in summer specialties, as expected, continues.

It is estimated that box board sales have been slightly larger. Within the last week prices of some lines have been marked down. Chip board is quoted at $27.50, compared with a previous price of $30.00, delivered New England points. Single manila lined chip ranges from $40.00 to $45.00, delivered New England points, according to the mill and thicknesses, compared with a previous flat figure of $42.50.

Unexpected increases have taken place in prices of some lines of gummed tape, ranging from three-quarters of a cent to seven-eighths of a cent and in some cases a little more.

The paper stock market remains dull. Prices tend towards weakness, but are unquotably changed.

# SUPERINTENDENTS MEET AT DAYTON, OHIO

*(Continued from page 25)*

**Those Present at the Convention**

Among those present were:—

G. J. Armbruster, Puget Sound Pulp and Timber Co., Everett, Wash.; Jas. J. Andrews, Fox Paper Co., Lockland, Ohio; A. J. Allison, Simonds-Worden-White Co., Dayton, Ohio; E. B. Ayres, Jr., Proctor & Schwartz, Inc., Philadelphia, Pa.

C. L. Bacheloer, Paper Makers Chemical Corp., Kalamazoo, Mich.; F. L. Bartow, U. S. Rubber Co., Fitchburg, Mass.; Wm. H. Burke, Glen Mills Paper Co., Wilmington, Del.; E. N. Bechard, Eastwood Corp., Belleville, N. J.; Howard J. Burke, Kelwax P. P. Co., Chicago, Ill.; P. D. Barker, Beckett Paper Co., Hamilton, Ohio; J. M. Booth, the Huron Milling Co., New York, N. Y.; W. H. Burns, Sonoco Products Co., Hartsville, S. C.; F. C. Boyce, Wausau Paper Mills Co., Brokaw, Wis.; Fred H. Burrows, Burrows Paper Corp., Little Falls, N. Y.; A. O. Bowness, E. B. Eddy Co., Hull, Quebec; William H. Brydges, Bedford Pulp and Paper Co., Big Island, Va.; J. E. Blosser, Continental Paper and Bag Corp., New York City; Geo. A. Bradley, Fort Howard Paper Co., Green Bay, Wis.; M. V. Brooks, Miamisburg Paper Co., Miamisburg, Ohio; Bernard Benson, Williams-Gray Co., Chicago, Ill.; Thos. E. Boyne, Smith Paper Co., Lee, Mass.; Edwin D. Burgess, Garden City Paper Co., St. Catharines, Ont.; Chas. A. Brautlecht, University of Maine, Orono, Me.; F. K. Becker, Bird Machine Co., South Walpole, Mass.; M. L. Bogle, Central Fibre Products Co., Tama, Iowa; W. H. Burns, Valley Iron Wks. Co., Appleton, Wis.; C. O. Bachman, Bagley & Sewall Co., Watertown, N. Y.; Geo. L. Bidwell, Riegel Paper Corp., Riegelsville, Pa.; L. H. Breyfogel, Draper Bros. Co., Kalamazoo, Mich.; G. S. Brazeau, Weyerhaeuser Timber Co., Longview, Wash.; E. W. Bush, Oxford Miami Paper Co., West Carrollton, Ohio; H. O. Bing, Beloit Iron Works, Beloit, Wis.; Harold H., Burrows, Manhattan Rubber Mfg. Div., Passaic, N. J.; J. H. Brougham, Foster Paper Co., Utica, N. Y.; Richard Brydges, Big Island, Va.

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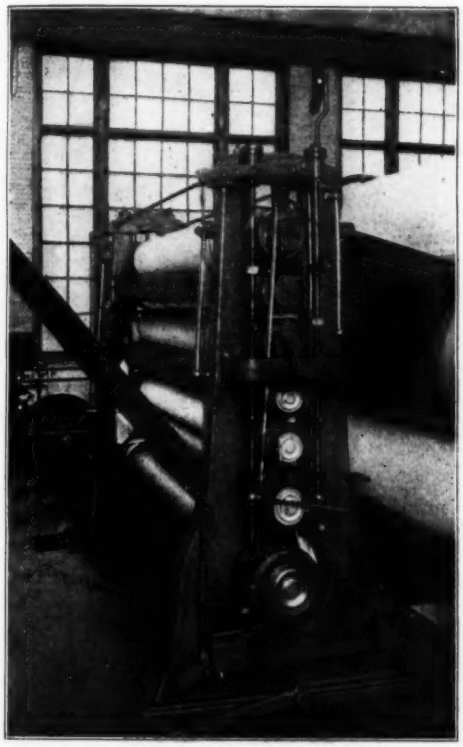
# THE BEST CALENDER ROLLS



CRODON
*The Chrome Plate*

CRODON is also especially effective on embossing rolls, press rolls, printing rolls, evaporator tubes, screen plates, suction box covers and elsewhere. Write for Bulletin No. 5, "CRODON in Paper Mills."

## *are those protected by a durable, long-wearing chromium plate*

Conclusive evidence of practical paper mill operation indicates that chromium plate affords the most suitable surface for calender rolls. These advantages are obtainable:

**Durability and long life**—Chromium, the hardest commercial metal, is ideal for resisting abrasion and wear.

**Resistance to corrosion**—CRODON is unaffected by the corrosive action of damp paper, water spray and steam.

**Smooth surface**—Chromium plate is extremely smooth and slippery—water and paper particles do not adhere.

**Permanent accuracy**—CRODON-plated rolls may be ground and polished with utmost precision, and the exactness is more permanent than with softer metals.

**Improved production quality**—Paper calendered by CRODON-plated rolls has fewer variations and inequalities in bulk and the finish is permanently improved.

**Scoring and scratching eliminated**—CRODON effectively resists wear of doctor blades and prevents scoring of roll surfaces.

## Chromium Corporation of America

*Licensee of United Chromium, Incorporated*

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*Executive Offices*

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*Cleveland Plant*
3125 PERKINS AVE.
CLEVELAND, OHIO

CRODON
*The Chrome Plate*
TRADE MARK REG. U.S. PAT. OFF.

*Chicago Plant*
4645 WEST CHICAGO AVE.
CHICAGO, ILL.

*Milwaukee Plant*
187 EAST BECHER ST.
MILWAUKEE, WIS.

*Member of Supply & Equipment Section—American Paper & Pulp Association*

O. W. Callighan, Edgar Bros. Co., New York, N. Y.; Geo. E. Corson, Clinton Corn Syrup Refining Co., Clinton Iowa; Edw. J. Clark, Cornell Wood Products Co., Cornell, Wis.; W. N. Claflin, H. C. Godman Co., Columbus, Ohio; C. E. Cole, Cincinnati, Ohio; R. J. Cunningham, Northern Paper Mills, Green Bay, Wis.; James B. Clarke, National Aniline & Chemical Co., Chicago, Ill.; O. M. Cornell, Kalbfleisch Corp., New York City; Chas. Champion, Millers Falls Paper Co., Millers Falls, Mass.; John Calder, Wrenn Paper Co., Middletown, Ohio; W. H. Croft, Esleeck Mfg. Co., Turners Falls, Mass.; Samuel Clayman, Clinton Corn Syrup Refining Co., Clinton, Iowa; J. F. Cronin, Cheney Bigelow Wire Works, Springfield, Mass.; C. L. Clark, Nash Engineering Co., New York City; Walter Cloud, Chicago, Ill.; W. G. Crawford, Sutherland Paper Co., Kalamazoo, Mich.; A. W. Cheely, Container Corp. of America, Cincinnati, Ohio; John C. Cunningham, B. F. Perkins & Son, Inc., Holyoke, Mass.

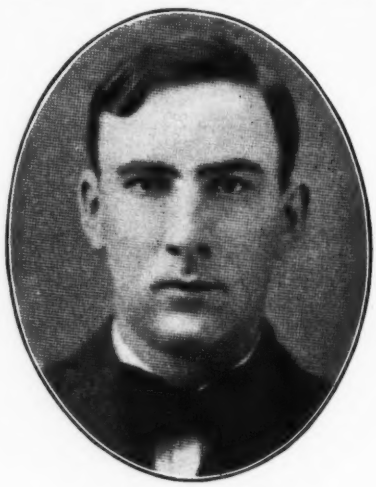
C. F. Duke, Central Machine Works, Indianapolis, Ind.; D. A. Donnelly, Noble & Wood Machine Co., Hoosack Falls, N. Y.; John J. Ditmyer, Gardner & Harvey Co., Middletown, Ohio; Joseph H. Dow, Castle & Overton, New York City; L. P. Darnell, Cincinnati Rubber Manufacturing Co., Cincinnati, Ohio; George C. Dunn, Dunn Sulphite Paper Co., Port Huron, Mich; F. W. Drake, Lockport Felt Co., Newfane, N. Y.; Frank A. Dayton, A. D. Cook, Inc., Lawrenceburg, Ind.; Geo. Docherty, Holyoke Wire Cloth Co., Holyoke, Mass.; B. W. Dean, E. D. Jones & Sons Co., Pittsfield, Mass.; John E. Daley, Port Huron Sulphite and Paper Co., Port Huron, Mich.; C. L. Durkee, D. J. Murray Manufacturing Co., Wausau, Wis.; Chas. Davidson, Jr., Southworth Co., West Springfield, Mass.; V. S. Denison, Beloit Iron Works, Beloit, Wis.; Richard F. Driscoll, Smith Paper Co., Lee, Mass.; Geo. A. Engert, Fritz Vertical Hydrator Co., Aurora, Ill.; Ivar Ekholm, National Aniline and Chemical Co., New York City; Roger J. Egan, Bulkley, Dunton & Co., New York City; R. F. Englehardt, Oswego Falls Corp., Skaneateles, N. Y.; Chas. L. Ellis, Downingtown Manufacturing Co., Downingtown, Pa.; S. L. B. Etherton, S. D. Warren Co., Westbrook, Me.; L. H. Everlien, Appleton Woolen Mills, Appleton, Wis.; Frank B. Eilers, Kalamazoo, Mich.

J. A. Foxgrover, Paper Makers Chemical Corp., Kalamazoo, Mich.; Valentine Friedrich, Jr., The Beckett Paper Co., Hamilton, Ohio; F. F. Frothingham, Bird Machine Co., Chicago; Frank D. Frampton, Hopper Paper Co., Taylorville, Ill.; P. M. Foster, Beloit Iron Works, Beloit, Wis.; Homer C. Ferguson, Champion Coated Paper Co., Hamilton, Ohio; Wm. B., Fulton, Midwest Fulton Machine Co., Dayton, Ohio; L. Paul Fortier, Michigan Paper Co., Plainwell, Mich.; A. C. Ford, Simonds-Worden-White Co., Dayton, Ohio; F. C. Farnsworth, Farnsworth Co., Conshohocken, Pa.

Ray Gleason, Franklin Board and Paper Co., Franklin, Ohio; Walter L. Glass, Tolhurst Machine Works, Troy, N. Y.; Philip H. Goldsmith, Black-Clawson Co., Hamilton, Ohio; Gus Gilsoul, Fort Howard Paper Co., Green Bay, Wis.; Robert M. Guie, Philadelphia Felt Co., Philadelphia, Pa.; J. Walker Grimm, International Paper Co., New York City; Roger W. Hooker, Hooker Electrochemical Co., New York City; C. L. Harter, Beckett Paper Co., Hamilton, Ohio; R. W. Holden, Stowe & Woodward Co., Newton Upper Falls, Mass.; Allan Hyer, Black-Clawson Co., Hamilton, Ohio; H. A. Horan, Penick & Ford Sales Co., Cedar Rapids, Iowa; Samuel N. Habern, Case Manufacturing Co., Unionville, Conn.; Robert H. Heuer, Newton Falls Paper Co., Newton Falls, N. Y.; J. D. Haskell, J. D., Dilts Machine Works, Inc., Fulton, N. Y.; J. F. Hogan, National Paper Products Co., Carthage, N.

ROBERT L. EMINGER
Secretary-Treasurer

KILLEY E. TERRY
Fourth Vice President



LEWIS E. WEISER
Fifth Vice President

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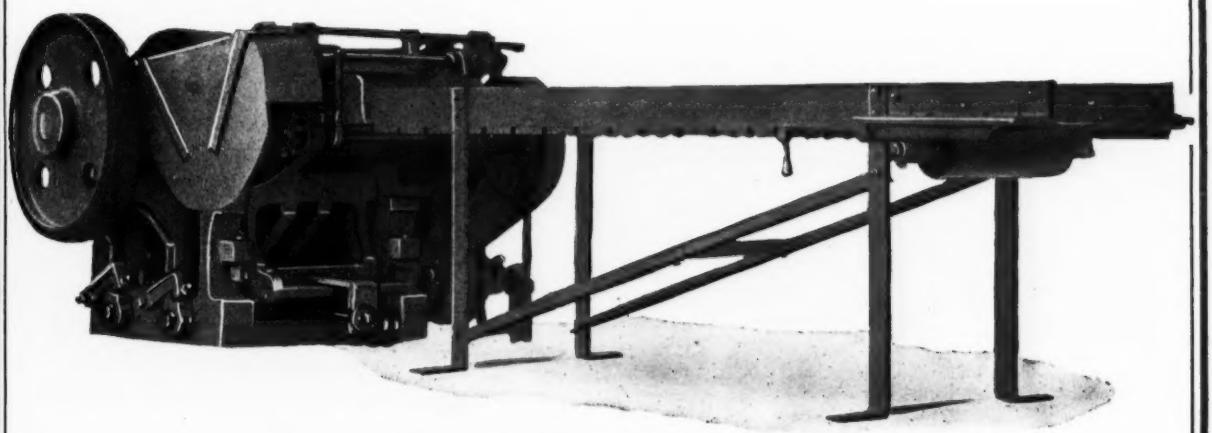
**Cutters are designed to offer the greatest possible working efficiency. GIANT Cutters are built solidly of materials which have passed through the most rigid and careful inspection. 60 years of practical experience is built into every GIANT Cutter before it leaves our plant.**



*No. 20 Multiplex "GIANT" Cutter*

**Capacity 5 Tons per Hour**
**Main Bearings S.K.F. Roller Type**
**Direct Connections to Motor Through Shearing Flexible Coupling**

**Improved Overhead Swung Feed**
**All Small Bearings Bronze — Graphite Bushed And Alemite Fitted**

**Very Economical of Power**
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**Built for hard, continuous Service**

**Rag Cutter Knives**
**Roll Bars**
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# SIMPLICITY
# . . . *in Elwell-Parkers means*
# Low Maintenance Costs

THE outward simplicity and clean design of every Elwell-Parker truck reflect the inward simplicity of construction—a simplicity that produces unusual strength and at the same time low maintenance costs.

Take the Elwell-Parker drive unit, for example. A Brown and Sharpe worm and worm gear provide the simplest form of driving mechanism, requiring fewer bearings and fewer parts to wear. Because of the worm gear drive, right and left drive shafts are interchangeable in all E-P trucks.

All wheels are mounted on oversize roller or ball bearings, so that drive shafts with universal joints may be drawn through the wheels.

The lift jack is held in position by four bolts, so that by removing these bolts the whole unit can be taken out bodily.

The lift unit is simplicity itself—and extremely rugged, too. Consisting of a brake, a motor, a worm and worm wheel, a safety clutch, a nut and a ram there are actually only three moving parts—nothing to get out of order—little to wear, even after years of service. No electric lift truck is better than its lift unit.

Brake shoes are easily relined. The shoes, which surround surface-ground, drop-forged drums, are readily lifted out by removing two nuts. Relining then becomes a simple matter.

On tiering trucks and cranes the simplest type of winch and cable is used.

Batteries are placed so as to be easily removed by sliding out of the battery compartment at either side, or by lifting out of the top. Complete attention has been given to simplicity of operation, with full vision for the operator of the load and conditions ahead when traveling in either direction. All operating controls are placed in easily reached, natural positions.

Elwell-Parker simplicity means lower operating cost, lower maintenance charges, a longer period of service and therefore a greater return on your electric truck investment. The one way to make *sure* you get all Elwell-Parker advantages, including interchangeability of parts between types, is to specify *Elwell-Parker* as the make of truck you buy.

***Write for informative booklets**—Elwell-Parker is constantly producing new information on handling materials. Send your name and the kind of materials you handle to make sure that you are informed of the most recent developments. Write The Elwell-Parker Electric Company, 4500 St. Clair Avenue, Cleveland, Ohio.*

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**DESIGNERS AND BUILDERS OF ELECTRIC INDUSTRIAL TRUCKS, TRACTORS AND CRANES FOR OVER A QUARTER CENTURY**

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David Patrick, Cheney Pulp and Paper Co., Franklin, Ohio; Max Poyck, Heller & Merz Corp., New York City; H. G. Potts, Pennsylvania Salt Manufacturing Co., Wyandotte, Mich.; E. L. Puffer, Heller & Merz Corp., New York City; H. W. Peters, Invincible Vacuum Cleaner Co., Columbus, Ohio; John L. Purdy, Orr Felt & Blanket Co., Piqua, Ohio; W. E. Phillips, Mathieson Alkali Works, Chicago, Ill.; Jacob Parent, Noble & Wood Machine Co., Hoosick Falls, N. Y.; Donald K. Pattillo, Clinton Corn Syrup Refining Co., Clinton, Iowa; James J. Powers, Smith Paper Co., Lee, Mass.; Theo. M., Pomeroy, Z. & W. M. Crane, Inc., Dalton, Mass.; Wm. W. Rettig, Gardner & Harvey Co., Middletown, Ohio; G. E. Rausch Interlake Tissue Co., Merritton, Ont.; H. G. Hohde, American Paper Mch. & Eng. Wks., Glens Falls, N. Y.; Fred J. Rooney, The Upson Co., Lockport, N. Y.; Harry Ross, Beveridge Paper Co., Indianapolis, Ind.; R. M. Radsch, Appleton Mach. Co., Appleton, Wis.; N. Rigabar, National Paper Products Co., Carthage, N. Y.; Wm. J., Robertson, Heller & Merz Corp., New York, N. Y.; Rex G. Radsch, Clinton Corn Syrup Refining Co., Clinton, Iowa; J. W. Raines, Lindsay Wire Weaving Co., Cleveland, Ohio; A. F. Richter, Stebbins Engr. & Mfg. Co., Watertown, N. Y.; James G. Ramsey, Jessup & Moore Paper Co., Wilmington, Del.

Chas. M. Shipway, Wm. E. Hooper & Sons Co., Philadelphia, Pa.; W. J. Sullivan, Grandfather Falls Co., Merrill, Wis.; J. Scheuerman, Cameron Machine Co., Brooklyn, N. Y.; P. D. Switzer, Moore & White Co., Philadelphia, Pa.; H. L. School, Green Bay Wire Wks., Green Bay, Wis.; Harold Sinclair, Bennett, Inc., Canton, Ohio; W. T. Schenk, Miami Valley Coated Paper Co., Franklin, Ohio; P. S. Sinclair, The Sinclair Co., Holyoke, Mass.; Floyd R. Seekins, Merritt Engr. & Sales Co., Lockport, N. Y.; Edward L. Stansel, Provincial Paper, Ltd., Mille Roches, Ont.; L. E. Smith, Nekoosa-Edwards Paper Co., Nekoosa, Wis.; J. R. Simpson, Consolidated Water Power and Paper Co., Wisconsin Rapids, Wis.; Howard Stansell, West Carrollton Parchment Co., West Carrollton, Ohio; Oscar Starnets, Riegel Paper Corp., Milford, N. J.; Douglas E. Scott, Adams Bag Co., Chagrin Falls, Ohio; W. H. Sievert, Michigan Carton Co., Battle Creek, Mich.; C. B. Smith, Huron Milling Co., Kalamazoo, Mich.; H. W. Sherman, Northern Paper Mills, Green Bay, Wis.; R. E. Sears, Shartle Bros. Mach. Co.; Middletown, Ohio; Geo. K. Spence, Castanea Paper Co. & N. Y. & Pa. Co., Johnsonburg, Pa.; Paul R. Schreiber, General Dyestuff Corp., Chicago, Ill.; R. C. Stewart, Shartle Bros. Mach. Co., Middletown, Ohio.

Harry J. Toole, Pagel, Horton & Co., New York City; E. L. Tewksbury, Stowe & Woodward Co., Newton Upper Falls; Geo. M. Trostel; Champion Fibre Co., Canton, N. C.; W. H. Teter, Mead Corp., Kingsport, Tenn.; A. G. Tatnall, Wm. E. Hooper & Sons Co., Philadelphia, Pa.; K. E. Terry, S. D. Warren Paper Co., Cumberland Mills, Maine; J. A. Turner, E. I. DuPont de Nemours, Chicago, Ill.; Wm. H. Theroux, Williams-Gray Co., Chicago, Ill.; H. L. Vanderberg, Staley Sales Corp., Decatur, Ill.

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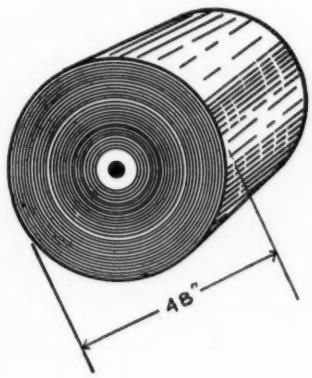
# HEAVY DUTY SLITTER and REWINDER

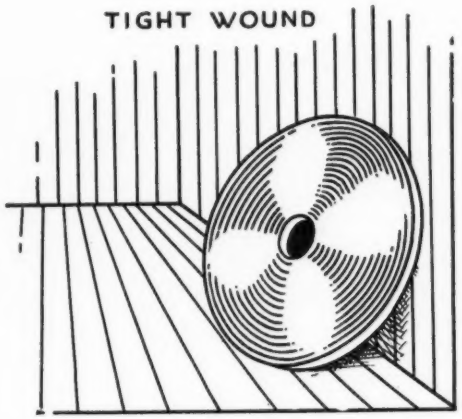
***Designed to meet the requirements of all users of Automatic Machines that take the stock from the roll, and require a roll of large diameter wound true and solid.***

**With this slitter, wide and narrow widths cut at the same time are of uniform tension. A roll slit and rewound 1″ wide and 48″ diameter can be handled without danger of spinning. At very little additional cost per ton paper mills equipped with this Slitter can furnish their customers with paper or board slit and rewound from 1″ width and up. Made in three widths; 48″—60″—72″.**

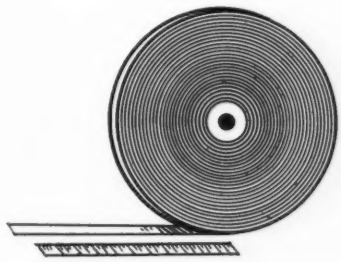
LARGE ROLLS




TIGHT WOUND



STRAIGHT CUT



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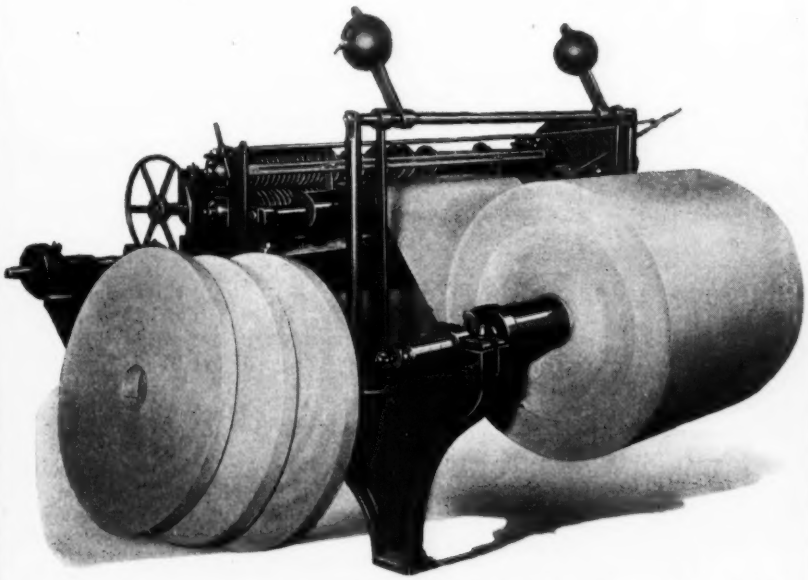

MACHINES

*Let us send you further information, including price and delivery of one of these machines for your mill.*

## INMAN MANUFACTURING COMPANY

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The Midvale Co., Detroit, Mich.; Wallace L. George, Merritt Engr. & Sales Co., Lockport, N. Y.; Ross Auvil, Crystal Tissue Co., Excello, Middletown, Ohio; Champion Werner; Walter G. Trotman, C. H. Smith Corp., West Springfield, Mass.; Curt Weil, Fidalgo Drying Systems, New York City; T. D. Slingman, Duriron Co.; Dayton, Ohio; Jack Smith, Sr., Gardner & Harvey Co., Middletown, Ohio; Jack Smith, Jr., Gardner & Harvey Co., Middletown, Ohio; Frank L. Shonkweiler, Midwest Fulton Mach. Co., Dayton, Ohio; V. C. Phenice, Midwest Fulton Mach. Co., Dayton, Ohio; T. H. Nelson, Midvale Co., Philadelphia, Pa.; H. D. Martindale, Shartle Bros., Middletown, Ohio.

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## Scandinavian Markets Mark Time

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., June 10, 1931—Commercial Attache Lund, at Oslo reports that the Scandinavian pulp and paper markets continue to mark time. The Norwegian lockout is still in effect, although prospects for successful arbitration are somewhat more favorable. Swedish and Finnish producers of paper and pulp are benefiting slightly from the almost complete cessation of shipments from Norway, but the effect on prices has been negligible. No further declines, however, have been observable lately, with the possible exception of news print, where recent developments in Canada have had the effect of weakening prices.

## Board Mill Signs Stipulation

WASHINGTON, D. C., June 8, 1931.—Words or expressions suggesting that a bureau of the United States government had officially endorsed its products will no longer be carried in advertisements by a corporation manufacturing fiber products, including insulating board, which has signed a stipulation agreements to this effect with the Federal Trade Commission.

The company will no longer imply in its printed matter that a bureau of the government has held that its product is the best insulation made, when such is not true. As is usual in these stipulation cases the name of the firm has been withheld from publication by the Commission.

## Fidalgo Products

R. D. Kehoe, president of Fidalgo Drying Systems, Inc., Chanin Building, New York, has sent out an announcement of the discontinuance of their sales representation for E. D. Jones & Sons, Inc., and that the latter concern will continue to manufacture certain of the Fidalgo products for his company. The Fidalgo Drying Systems, Inc. included among its products pulp driers, felt conditioners, shredders, consistency regulators, and other types of equipment used in pulp and paper mills.

## Work of the Import Committee

A test case involving the classification of M. G. sulphite paper envelopes has been decided by the United States Customs Court in accordance with the evidence provided by the Import Committee. Lithographed shopping envelopes, made of M. G. sulphite paper, were claimed by a Baltimore department store, the importer, to be dutiable as bags, while the custom officials held them to be envelopes dutiable at 30 per cent as such, plus 30 per cent because the paper of which the envelopes were made was lithographically printed. The importer's claim was that the proper duty rate was 5 cents per pound and 20 per cent as bags of decorated paper. The case is of importance to the envelope industry because it prescribes that envelopes need not be susceptible of mailing to be so classified.

The decision of customs officials to hold Swedish kraft paper for duty at values higher than the invoice prices has resulted in the carrying of several such cases to the United States Customs Court by the importers in an effort to overturn the administrative rulings. Twenty seven such importations have been protested in the last two weeks, of which thirteen were for one importer, and eleven for another. The increased valuation runs from 50 to 98 cents per hundred pound. The importations in question involve machine glazed paper.

The extent to which foreign manufacturers are flooding the American market with paper napkins, doilies, bridge sets, table cloths, etc., both tissue and of heavier papers, is shown by the fact that under a test case on this issue 66 other importations are before the Customs Court on a suspended status, awaiting the decision of the court as to whether this merchandise is dutiable at lower rates than those under which it is classified by the customs officials. Some of the shipments are of creped tissue, often further decorated by embossing, while the bulk of the shipments are of heavier paper, not creped, but decorated by embossing or printing or both.

The May docket of the United States Customs Courts included new cases involving 116 importations of paper, valued at upward of $150,000. The depression abroad is resulting in the most desperate efforts of foreign producers to escape the proper duties on their merchandise, and find a market in this country.

It is in times of such emergency that the Import Committee is of the greatest value to the paper industry, and by aggressive action it is saving the domestic mills from some of the unfair foreign competition which would otherwise add to already sufficiently serious problems.

## New Tube-Turns Bulletin

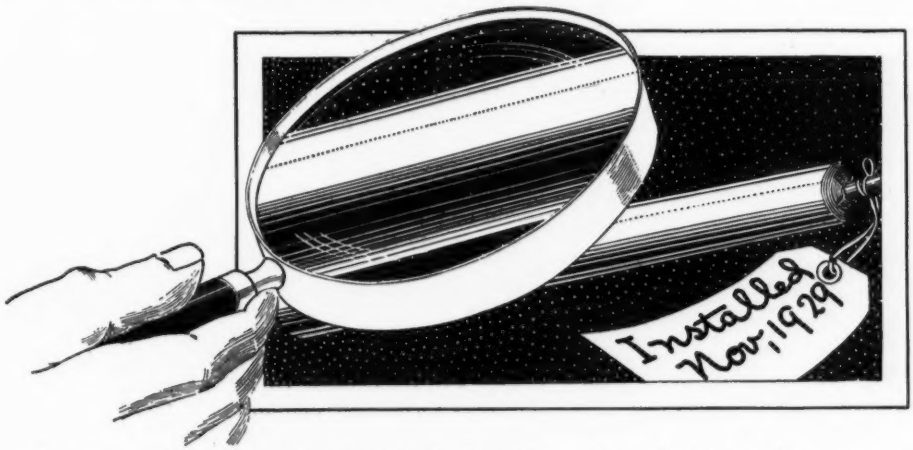
Tube-Turns, Inc., manufacturers of seamless drawn fittings for welded piping, of Louisville, Ky., has just published a new bulletin containing design data for expansion loops made with Tube-Turns and straight pipe. Included is a Tube-Turn Expansion Loop Design Chart for rapid and accurate calculations.

The information contained in this useful booklet has been proved by tests and by actual operation and the bulletin should be eagerly sought by engineers throughout the country.

## Connecticut Valley Superintendents to Meet

The Annual Spring Meeting of the Connecticut Valley Division of the American Pulp and Paper Mill Superintendents' Association is scheduled to take place at the Hotel Narragansett, Providence, Rhode Island, on Saturday next, June 13. A short business meeting will be held at 2:30 p.m. The Annual Banquet, for which an ambitious program has been arranged, will take place at 6:30 p.m.

# Not a sign of wear on this Tensilastic Rubber Table Roll




A year ago last November we tried a bit of a gamble. A prominent mill was having troubles with table rolls,—whipping, gobs of pitch, pits, uneven wear,—the sort of troubles that make machine tenders prematurely grey.

We got them to put a Tensilastic Rubber Table Roll among the others, to let it prove its case. Our roll took the challenge, stood up on its own two bearings and went to work,—and has been running steadily ever since. It has *never* picked up pitch or fibre. Although operating under a heavy deckle strap, sometimes with the edge of the wire under the strap, it does not show a single scratch or other sign of wear.

Just one case,—and not particularly unusual. For Tensilastic Rubber Rolls have a way of performing satisfactorily, efficiently, economically,—as table rolls, breast rolls, couch rolls, wire guide, stretch and carrier rolls.

Specializing in rubber rolls has taught us a lot of things that are responsible for this exceptionally high degree of performance. For example, Tensilastics are perfectly balanced, eliminating whip and jump, production and power losses, and wear on the expensive machine clothing.

Tensilastics are amazingly wear resistant,—proof against surface scratches and mars, corrugation and distortion, water pits and acid corrosion. Neither pitch nor fibre can cling to Tensilastics, — reducing the hazards of spoiled sheets and plugged wires and felts.

Tensilastics are exceptionally slow in depreciation. And so resistant to oxidation that they may be stored for long periods without deterioration.

Tensilastics are ready for any performance test. Try them on your machines,—either as complete installations or as units running with your present rolls. You'll find in them the answer to many problems.

## American Wringer Co., Inc.

*Rubber Roll Specialists for More Than 40 Years*

33 No. La Salle St., Chicago — Woonsocket, Rhode Island — 461 Eighth Ave., New York

Pacific Coast Representative: Walter S. Hodges, Lewis Bldg., Portland, Ore.

CANADIAN FACTORY: FARNHAM, QUEBEC

# TENSILASTIC
## RUBBER ROLLS

T15

# Trade Mark Department

CONDUCTED BY NATIONAL TRADE-MARK CO., WASHINGTON, D. C.

The following are trade mark applications pertinent to the paper field pending in the United States Patent Office, which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade Mark Company 900 F Street, N. W., Washington, D. C., trademark specialists. As an additional service feature to its readers, PAPER TRADE JOURNAL gladly offers to them an advance search free of charge on any mark they may contemplate adopting or registering.

A D, and design. Ser. No. 298,938. Amy Drevenstedt, New York City. For envelope and sheets of writing paper either in bulk or in packages, portfolios, or boxes; sheets or rolls of decorated paper, etc.

McBEE, and representation of a shield. Ser. No. 310,688. The McBee Binder Company, Athens, Ohio. For stationery, namely, letter paper, leaves for loose-leaf files, printed blanks, and forms.

SKEETEX. Ser. No. 311,474. The Diapex Corporation, New York City. For sanitary protective paper sheets and sheeting.

SHROUDEX. Ser. No. 311,494. Alexander H. Straus, New York City. For paper shrouds.

CONWAY CASTLE. Ser. No. 311,020. American Writing Paper Company, Inc., Holyoke, Mass. For writing and printing paper.

GLENBOURN. Ser. No. 311,729. Hurlbut Paper Company, South Lee, Mass. For writing and printing paper.

LEABOURN. Ser. No. 311,730. Hurlbut Paper Company, South Lee, Mass. For writing and printing paper.

SILVERBOURN. Ser. No. 311,731. Hurlbut Paper Co., South Lee, Mass. For writing and printing paper.

ROCKBOURN. Ser. No. 311,732. Hurlbut Paper Company, South Lee, Mass. For writing and printing paper.

NATOMA. Ser. No. 311,722. Butler Paper Corporation, Chicago, Ill. For paper—namely, book paper, cover paper, document paper, bristol, cardboards, bond paper printing paper, writing paper, ledger paper, etc.

APRONEX. Ser. No. 311,473. The Diapex Company, New York City. For paper household aprons.

VENTPAK. Ser. No. 311,276. Fred M. Longnecker, Delta, Ohio. For containers—namely, boxes, trays, crates, and cartons.

NOKUT. Ser. No. 303,420. Crown Paper Company, Sanford, Fla. For paper and guards for packing fruits and vegetables.

CELLOPACK. Ser. No. 307,017. White & Wyckoff Manufacturing Company, Holyoke, Mass. For writing and printing paper and mailing envelopes in packages.

CLEARING HOUSE BOND. Ser. No. 307,149. Graham Paper Company, St. Louis, Mo. For bond paper.

SANI-HANKS. Ser. No. 311,853. The Tissue Company, Saugerties, N. Y. For paper handkerchiefs.

OLD MISSION. Ser. No. 311,238. General Paper Company, San Francisco, Calif. For bond, flat, and ledger paper and correspondence envelopes.

HUGUENOT BOND, and picture of pilgrim with gun. Ser. No. 308,673. The Little Print of New Rochelle, N. Y., Inc., New Rochell, N. Y. For stationery and particularly letterheads and envelopes.

WYTPAK. Ser. No. 309,103. Wheeler Paper Corporation, Albany, N. Y. For toilet paper.

FULGORMILL. Ser. No. 309,974. Hammermill Paper Company, Erie, Pa. For bond writing paper.

MAGIC. Ser. No. 312,067. Seward Wire Company, Inc., Parkersburg, W. Va. For clotheslines.

WYTROL, and picture of nude girl dancing. Ser. No. 308,525. Wheeler Paper Corporation, Albany, N. Y. For toilet paper.

IVORIZED FINISH. Ser. No. 311,734. Hurlbut Paper Company, South Lee, Mass. For writing and printing paper.

MECHANO. Ser. No. 311, 881. Millers Falls, Mass. For ledger paper.

FANTASY. Ser. No. 312,210. Westfield River Paper Company, Inc., Russell, Mass. For embossed glacine paper.

## Testing New Package Designs

The use of scientific or laboratory methods in developing and testing new package designs has just been initiated by the Robert Gair Company with the installation of a complete retail store unit in one corner of its executive offices at 420 Lexington avenue, New York city. Using standard equipment of one of the large retail chains, the company has built in shelves, counter and one of the new frozen foods refrigerator display cases and stocked the store with packages in paper, tin and glass just as these products would be placed in a regular retail store.

Onto these shelves come the samples of new container designs after they have run the gauntlet of artists, package engineers, business executives, advertising agency men and others to take their place among older packages which have established themselves in their respective fields. Before this stage is reached the package engineers have determined the efficiency of the package from the standpoint of mechanical design and economy and the tests which follow concern themselves mainly with the advertising quality of the container, its sales appeal and other points involving customer acceptance.

These tests are conducted by the business executives directly concerned with bringing out the new package, Gair stylists and package experts and by groups of laymen representative of the average customer. Recently one of Dale Houghton's classes in advertising from the School of Commerce of New York University made a series of tests on coffee and tea packages in which an answer was sought to the question of color appropriateness for these products.

The refrigerator display counter, which maintains a temperature of about 10 degrees above zero, is being used to test not only the display value of packages but also to work out answers to some of the mechanical problems involved in devising satisfactory containers for frozen foods.

## To Standardize Fourdrinier Wires

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., June 10, 1931.—Representatives of the wire cloth manufacturers, paper and pulp industry and of the Bureau of Standards attended a conference here last week in connection with commercial standards for Fourdrinier wire cloth.

The proposed standards which had been distributed to those interested being the recommendations of the Wire Cloth Manufacturers Association were considered at the conference, and with a few constructive modifications, approved and recommended to the industries for formal acceptance. Before this commercial standard is finally established, however, it must be accepted by a satisfactory majority of production by volume.

The recommended commercial standard will be circulated shortly to approximately 1400 interested producers and users for written acceptance. In the event sufficient acceptances are received the new commercial standards will become effective for new production, and for clearance of existing stocks, 60 days and 6 months respectively, after announcement of the success of the program.

G. W. Wray, of the Division of Trade Standards of the Bureau of Standards was appointed chairman of a standing committee to consider revision to keep the specifications up to date.

# CONSTRUCTION *Features*

## that account for the longer life of the Waldron Rolls

**Made of only the most carefully selected grade of paper to insure a solid, substantial foundation.**

**The most accurate conditioning of raw materials to make certain of the proper moisture content.**

**Shafts and Heads exactly proportioned to withstand the necessary pressure required for proper compression.**

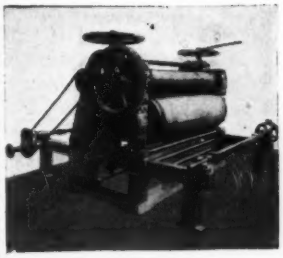
**The extent of the pressure and the long period of time that it is steadily applied.**

**The measure of hardness and perfection of head balance resulting from correct amount and time of pressure.**

**The freedom from faults and flaws that are eliminated by exacting Waldron tests.**

● ● ● ●

**We have prepared a printed sheet of instructions on how to run in a paper roll to secure the most and best service from it. A copy will be gladly sent to you upon request to our office nearest you and without obligation.**



The "Centennial" model Embosser illustrated is one of the many modern types available for practically all classes of embossing. The "Centennial" is an open front model with split boxes affording remarkably quick change of rolls without the necessity of removing entire box.

Let our engineering staff suggest ways by which your embossing can be improved and your production costs reduced.

**CALENDER ROLLS PAPER ROLLS EMBOSSING ROLLS**

## JOHN WALDRON CORPORATION

*MAIN OFFICE AND WORKS, NEW BRUNSWICK, N. J.*

| NEW YORK | CHICAGO | PORTLAND, ORE. |
|---|---|---|
| 122 East 42nd Street | 201 North Wells Street | 311 Lewis Bldg. |

# WALDRON

*Paper . Converting Machinery*

## New York Trade Jottings

R. S. Kellog, Secretary of the News Print Service Bureau with headquarters in New York, is attending the hearing of the National Timber Conservation Board at Washington, D. C., this week.

* * *

The Eastern Division of the Salesmen's Association of the Paper Industry held its final weekly luncheon and meeting of the season last Tuesday at George's Restaurant, New York. The weekly luncheons and meetings will be resumed on Tuesday, September 15.

* * *

Milton Paper Company, Inc., general paper merchants, of 119 West 24th street, New York, entertained its entire sales force to dinner at the Printing Crafts Club on Monday, June 2, when a sales contest was launched for the months of June, July and August.

* * *

Eastern Manufacturing Company has appointed the Harlem Card and Paper Company, of 207 East 19th street, New York, agents for the Eastern Atlantic lines, and they are now distributing sample books of Atlantic Bond, Atlantic Ledger, Atlantic Cold Pressed Lair, Atlantic Laid Text, Volume Bond, Volume Ledger and Volume Cover.

* * *

Cunard Steamship Company, Ltd., has just published an interesting and instructive booket, entitled "Conversion of Kilos Into Pounds and Pounds Into Kilos." This booklet is the only one that eliminates the decimals in the conversion of kilos into pounds and is particularly useful on this account. A copy of the booklet will be sent free on application to C. W. Kenick, general freight manager, 25 Broadway, New York.

* * *

The Joint Committee on Approved Pulp Testing Chemists for the Paper Industry of the United States, announces that the following have been accepted by the committee as approved mill pulp testing chemists, and listed as such, effective April, 1931: Sidney D. Wells, Nekoosa-Edwards Paper Company, Port Edwards, Wis.; Harold Koch, Auglaize Box Board Company, St. Marys, Ohio; John B. Calkin, Dennison Manufacturing Company, Framingham, Mass.; and Henning J. K. Arbo, British Columbia Paper Manufacturing Company, Inc., Woodfibre, British Columbia. Thomas Hans, 4155 North Dickinson Avenue, Chicago, Ill., has been accepted by the committee as an approved commercial pulp testing chemist, and is listed as such, effective April, 1931.

## Strathmore Convention June 15-16

[FROM OUR REGULAR CORRESPONDENT]

WEST SPRINGFIELD, Mass., June 9, 1931.—The annual mill and merchant convention of the Strathmore Paper Company will take place here June 15-16. Acceptances received so far indicate a good attendance. The theme of the meeting will be "Why Strathmore?" Horace A. Moses, president of the Company, will have a part in the program and the inspirational address will be by Vice President B. A. Franklin and he will also outline business conditions and prospects. Treasurer George E. Williamson will have charge of the part of the program relating to manufacturing, C. F. Norton, assistant sales manager, will talk on sales and H. E. Riggs on advertising.

## William M. Loveland Dead

KALAMAZOO, Mich., June 8, 1931—William M. Loveland, 62, lifelong resident of Kalamazoo and prominent in the industrial and financial circles of the city, died at 6:45 Sunday morning in Bronson hospital. He was the victim of an acute heart attack, being stricken Monday night and removed to the hospital immediately. According to his family, his condition Memorial Day and Sunday gave no indications of the approaching attack and when it did appear, it was believed to be acute indigestion, from which he has been a sufferer.

It was two years ago that he resigned as president of the Watervleit Paper Company and since has been gradually abandoning all business activities, retiring from a number of directorates. At the time of his death he was on the board of the Bank of Kalamazoo and the Kalamazoo Railway Supply Company.

William M. Loveland was born in Kalamazoo in September, 1868, the son of the late Mr. and Mrs. Richard Loveland, numbered among the city's best known pioneer residents. He attended the local public schools and graduated from Parsons Business College. He took early to business, starting as a newsboy and advancing rapidly. He was a series secretary for the Kalamazoo Building and Savings Association and later with the Newton Carriage Company and the Michigan National Bank, under John W. Taylor.

He evinced a liking for military activities and became a member of Company C, Michigan National Guard. He passed in turn through the ranks of private, non-commissioned and commissioned officers and became regimental adjutant under Col. E. M. Irish. With the outbreak of the Spanish-American war he went south with the 32nd Michigan and into Cuba with the troops commanded by General Carpenter. He was advanced to rank of major in the commissary department.

When mustered out of service he returned home and soon after entered the employ of the Kalamazoo Paper Company and advanced to the position of secretary. With the reorganization of the Watervleit Paper Company in 1915, Mr. Loveland was induced to leave the Kalamazoo Paper Company and go to Watervleit as president and general manager of that company. During his incumbency in office the Watervleit Paper Company became one of the most prosperous concerns in the valley. The capacity of both the paper and coating divisions were more than doubled. Two years ago he retired, being in poor health.

In addition to his Watervleit interests, he was also a stockholder in other Kalamazoo valley mills and a director of the Bank of Kalamazoo and the Kalamazoo Railway Supply Company. He was a member of the Park Club, Kalamazoo Country Club and the Gull Lake Country Club. He was also a Mason, Knight Templar and Elk and was affiliated with the First Presbyterian church. He had always been active in the Richard Westnedge Post of the United Spanish War Veterans. In the early 90s he married Miss Ada Cook, daughter of a former well known Niles and Kalamazoo manufacturer. The Lovelands have always been prominent in society and have a fine residence in Kalamazoo and an attractive summer home near the Gull Lake Country Club, Gull Lake.

In addition to the widow, the immediate survivors are, a daughter, Mrs. W. Scott Radaker, of Ashville, N. C.; a son, Richard Loveland, now a junior at the University of Michigan; a brother, Richard H. Loveland, Jackson; a sister, Mrs. August Salm, of Kalamazoo and three grandchildren, C. W. Richard Radaker, Dorothy June Radaker and Peter Henrico Radaker.

# STOCK CONSISTENCY REGULATION

## MEYERS-MESCO

# THE IRON HAND *of a* MEYERS-MESCO REGULATOR

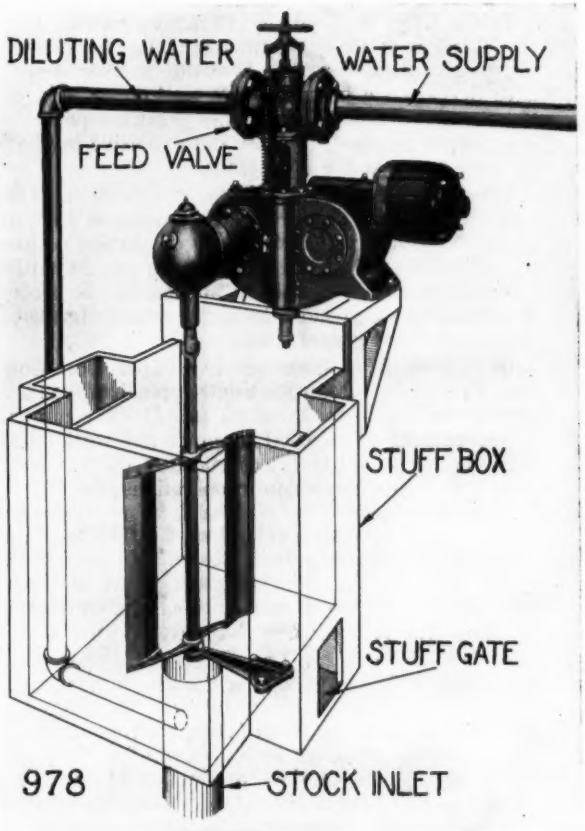



Figure 975
Patent Applied For

promptly and automatically controls paper and board stock consistency with a constancy and precision that cannot be approached by the human hand. It will operate on stock not lighter than 2.5% and not heavier than 7%. It has proven itself capable of handling a wide range of stocks from tissue to insulation board, including condensor papers, rope stock and raw sulphite, unbeaten and unbleached.

It tackles jobs that are difficult and problems that are unusual and succeeds where other regulators fail.

**NOTICE**

**We Are The Manufacturers and Sole Distributors of**

MEYERS-MESCO

STOCK CONSISTENCY REGULATOR
**Bulletin 3105**

AUTOMATIC WATER FEEDER
**Bulletin 3101**

BEATER STOCK RECORDER
**Bulletin 3104**

## MERRITT ENGINEERING & SALES CO., INC.

LOCKPORT, N. Y.
U. S. A.

# CONSTRUCTION NEWS

*A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills*

### Construction News

**New Orleans, La.**—The Bates Valve Bag Company, 60 East 42nd street, New York, a subsidiary of St. Regis Paper Company, same address, has approved final plans for new branch mill to be occupied under lease at New Orleans, and general contract has been let by Hortman-Salmen, Inc., New Orleans, owner of building, to H. Pratt Farnsworth, Canal Bank Building, New Orleans. It will be one-story, 100x240 feet, located at South Jefferson Davis Parkway and New Basin Canal, estimated to cost close to $200,000 with machinery. Superstructure will be placed under way at once. J. C. DeArmas, 109 North Robertson Street, New Orleans, is engineer.

**Duluth, Minn.**—The Paper Products Company is planning rebuilding of portion of plant at 340 Lake avenue south, occupied under lease, recently destroyed by fire with loss reported at close to $40,000, including equipment. The structure is owned by Marshall Wells Company, Duluth, food products.

**Lititz, Pa.**—The Walton Corporation, recently organized with a capital of $200,000, is planning the operation of a local paper mill. The company is headed by Harold L. and Rudolph L. Walton, both of West Orange, N. J., and H. J. Pierson, Lititz. Last noted will be treasurer.

**Philadelphia, Pa.**—The Progress Paper Box Manufacturing Company, 821 North 13th street, has leased space in the factory at Front and Oxford streets, totaling about 10,000 square feet of floor area, and will occupy for expansion in manufacture.

**Watertown, N. Y.**—The Beebe Island Corporation, Watertown, identified with paper mill interests in this section, will carry out a hydroelectric power development program, with installation of a new water-wheel generator unit and auxiliary equipment. The output will be used primarily for paper mill service. Contract for the water-wheel has been awarded to the General Electric Company, Schenectady, N. Y. The plant development will cost over $150,000, with machinery.

**Shelton, Wash.**—The Rainier Pulp and Paper Company, Shelton, has authorized a bond issue of $2,500,000, a portion of proceeds to be used for general financing and plant expansion. Of this gross amount, company will dispose at once of bond issue totaling $500,000, to be used in part for extensions. Other bonds of total issue will be offered for sale at later date.

**Springville, N. Y.**—The Springville Folding Box Sales Corporation, Springville, recently organized with capital of $15,000, plans operation of local plant for the manufacture of paper folding boxes and containers. Henry Lawrence and Charles Salzler, 40 Mill street, Springville, head the company.

**Cambridge, Mass.**—The Cambridge Paper Box Company, 196 Broadway, has taken over the local paper box plant formerly operated by the Lowney Confectionery Company, and will use for expansion in operations. Joseph H. Perry is president.

**Jersey City, N. J.**—In cooperation with E. I. puPont de Nemours & Co., Wilmington, Del., the United Wall Paper Factories, Inc., 151 Westside avenue, Jersey City, have developed a new washable wall paper, said to equal if not exceed the quality of the imported papers of this kind. It is proposed to carry out extensive production of the new paper at the local plant.

**West De Pere, Wis.**—The DePere Paper Manufacturing Company, Fort Howard avenue, is said to have plans maturing for the rebuilding of portion of local mill recently destroyed by fire, with loss of more than $85,000, including building, equipment and stock. Reconstruction is expected to cost close to a like sum. Herman Miller is treasurer and general manager.

**Baltimore, Md.**—The Service Paper Box Company, Inc., Baltimore, Joseph M. Smith, president, has arranged for an increase in capital stock of $25,000 common stock, by an amount of $25,000 in preferred stock, making a total capital of $50,000, a portion of the increase to be used for general expansion in operations.

**Boston, Mass.**—The National Fibre Company, recently organized with a capital of $25,000 by Harold W. O'Leary, 52 Chauncy street, Boston, and associates, plans operation of a plant for the manufacture of fiber materials, as well as wood pulp and kindred products. Mr. O'Leary will be treasurer. Everett B. Horn is president.

**Lisbon Falls, Me.**—The Pejepscot Paper Company, Brunswick, Me., is arranging for the permanent closing of its local mill on or about July 1. The plant has been giving employment to about 100 operatives. Present market conditions are given as the reason for the suspension. The company will continue production at its mills at Pejepscot and Topsham, Me., as heretofore, and these plants will hold to the present manufacturing schedules without change. Fred Hall is superintendent at the Lisbon Falls mill.

**Fort Worth, Tex.**—The Trinity Paper Company, recently organized, will take over and expand the company of same name, with headquarters at 1707 Calhoun street. The new organization is headed by T. H. Mead and Charles Gamer.

**Atlanta, Ga.**—The Gaylord Container Company, 229 Grant street, S. E., manufacturer of corrugated paper containers, etc., has asked bids on general contract for a new plant on Humphries street, fronting on the line of the Southern Railway. It will be one-story, 200 x 220 feet, with platform for railroad car loading, 200 feet long reported to cost over $75,000, with equipment. It is ex-

pected to award general contract and place work under way at an early date.

**Halifax, N. S.**—The Maritime Paper Products, Ltd., Almon street, Halifax, specializing in the manufacture of corrugated shipping containers and other corrugated paper products, will soon be producing in its new local plant on which work has been in progress for a number of weeks past. The unit will be located at Halifax and will provide about 30,000 square feet of floor space. The Maritime company has no connection with any other interest, and is headed by Ray Lawson, president; Col. S. C. Oland, vice-president; and W. H. C. Schwartz, secretary. Pickings & Wilson, Halifax, are architects for the new plant. Mr. Lawson, president, is also identified with a number of other companies in similar line of production, including Lawson & Jones, London, Ont., and London Shipping Containers, Ltd., of the same place, as well as the Litho & Folding Box Company, Ltd., Montreal, Que.

**Thorold, Ont.**—In connection with an improvement program at its local mill, the Ontario Paper Company, Allanburg road, has approved plans for a new two-story unit, to be equipped as a machine unit. It will be 50 x 144 feet, and is reported to cost about $70,000, including equipment. Work will be placed under way at once. John Stadler, 1117 St. Catharine street, west, Montreal, Que., is engineer for the company.

## Falling Off in Pulpwood Demand

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., June 8, 1931.—One large Toronto concern which usually enters into contracts for 100,000 cords of pulpwood each year, will in 1931 not purchase more than half this quantity, as they will have a considerable stock on hand. Pulpwood prices generally have taken a drop of twenty-five per cent. during the past twelve months. One large Ontario dealer said: "The pulpwood situation is not very bright. Several mills have enough wood on hand to last them during the coming season and those which are entering the market are doing so on a greatly reduced scale. Low prices do not seem any inducement under present circumstances to stock up.

Demand for poplar has fallen off quite a bit and the only one who can make anything out of pulpwood at the present time, at the reduced quotations, is the settler, who has only his time to invest, his wood costing him nothing. The result is that he is able to make some money to keep things going. On the other hand, contractors who have to hire help, pay out cash, etc., are not in a position to make ends meet and many of them will not be in the field this year owing to the depressed state of the market."

## Paper Import Cases Abandoned

Sixty-eight cases involving importations of foreign paper which had been carried to the United States Customs Court in protest against rulings of the customs officials, were abandoned by the importers when called for trial in the recent session of the court. Of these cases sixteen involved imports of metal coated or other fancy decorated papers, thirty-seven lithographic transfer paper importations closed by a decision of the appellate court. The others involved bristol, paper napkins, flock coated, writing, cover, punching and Japanese fancy tissue papers.

At Cincinnati, according to the Import Committee of the American Paper Industry, an importer has abandoned his plan to contest the new provisions of the law classifying papeteries separately from writing paper, under which papeteries are dutiable at 40 per cent, writing paper remaining at 3 cents per pound and 15 per cent.

## Boston Paper Trade Happenings

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., June 8, 1931—Carter Rice & Co. Corp. and Storrs & Bement Company have issued new catalogs and price lists in loose-leaf form. This form makes possible the insertion of pages containing price changes and new lines, so that the books can be kept up-to-date. Carter Rice & Co. are to have a bound edition ready this week.

John Carter & Co., Inc., are mailing to printers gift packages of stationery made from Old Deerfield Bond, one of the most widely used papers in the manufacture of stationery for indivduals and firms. This paper is made by The Millers Falls Paper Company, Millers Falls, Mass.

The Pratt Paper Company are to remove June 20 from 159 Devonshire street to their new office at 136 Federal street. A E. Martells Company, manufacturers of a loose leaf system, are to remove to the same address. The building at 159 Devonshire street is about to be reconstructed, so that it is necessary for all tenants to leave.

The Arnold-Roberts Company are distributing four new lines: Indian Head Cover, made by Knowlton Bros., Watertown, N. Y., in antique and ripple finish, with a range of beautiful colors; Vanity Fair Cover, of pleasing design, a new product of A. M. Collins; Agecroft Text, a laid sheet with a new effect in a chain mark, manufactured in white, opal and ivory by the Standard Paper Manufacturing Company, Richmond, Va., and Rockledge Bond, in white and colors, made by the Millers Falls Paper Company.

A meeting of the sales force of Stimpson & Co., Inc., was held recently at the Hotel Statler, with 26 salesmen present. H. L. Sampson, eastern representative of the Hoberg Paper & Fibre Company, Green Bay, Wis., who was guest speaker, gave a sales talk on his company's lines of paper towels and napkins and toilet tissues, distributed in New England by Stimpson & Co. Mr. Sampson was given an enthusiastic reception. A. L. Gooch and A. M. Bartlett, vice president and secretary, respectively, of Stimpson & Co., who have been away from the office for six months on acocunt of illness, were able to attend the meeting.

H. L. Thompson, representative of the E. P. Lawson Company, Inc., selling agents for the Seybold Machine Company, of Dayton, Ohio. with offices at 170 Summer street has tendered his resignation, which took effect June 1. Mr. Thompson had charge of the sales of the New England office of the E. P. Lawson Company over twelve years. Law Williams, of the New York office has succeeded Mr. Thompson.

Harold Hopkins, assitant sales manager of the Oxford Paper Company, Rumford, Me., with headquarters at the New York office, made a brief visit to Carter, Rice & Co. last week.

## Wm. Einzig Made State Purchasing Agt.

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND., Ore., June 6, 1931.—William Einzig associated with the pulp and paper industry of the northwest in various capacities for a number of years, was on June 1 appointed state purchasing agent for Oregon by Governor Meier. Mr. Einzig was for more than five years purchasing agent for the Washington Pulp and Paper company at Port Angeles and Seattle. About a year ago he severed that connection and joined the pulp division of the Weyerhauser Timber company at Longview, Wash., where he remained until this spring when he took up some special work for Governor Meier.

# POWER PLANT SECTION

## REDUCING POWER COSTS THROUGH UNIT TREATMENT

*Conducted by* **Reginald Trautschold Consulting Engineer**

# Air Preheaters In Paper Mills*

### Effect Heat Conservation and Fuel Economy

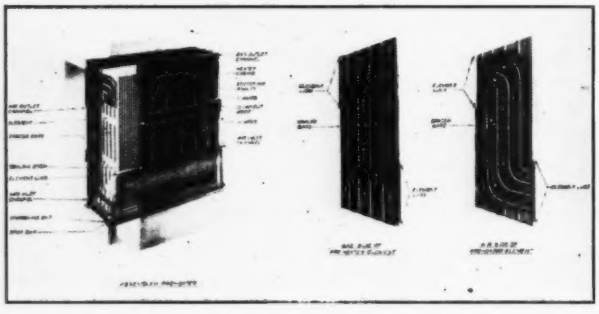
In the extraction of all possible useful heat from the fuel consumed in the modern high efficiency boiler plant, four distinct stages of heat absorption may be, and are quite generally, involved; entailing the effective use of boiler, superheater, economizer and air preheater heating surfaces. Of these four, the superheater absorption only may be said to be definitely fixed, the heating surfaces effecting the other three stages of heat extraction having to be economically proportioned to secure satisfactory results.

In attacking this all important problem, the trend in approved practice is to determine first the required air preheater surface, rather than to start with proportioning the boiler heating surface to the requirements. The second step is then to plan an economizer capable of raising the feedwater temperature to within 75 to 50 degrees Fahrenheit of the temperature of saturated steam, with a corresponding drop in gas temperature, and the final step is to install sufficient boiler surface to absorb the balance of the useful heat. The rating at which the boiler is operated is immaterial, since the rating is dependent upon the maximum fuel feeding rate and the ability of the boiler furnace to burn the fuel. In substantiation of the merits of this school in boiler design, it might be mentioned that steam generators so proportioned, boilers supplemented by large air preheaters and economizers, are operating at above 1,000 per cent. of rating with an availability factor of 95 per cent.

The advisable amount of air preheater surface to provide can be quite accurately determined, of course, knowing the available temperature range for the conditions which pertain, but it is of interest nevertheless to note that one prominent builder of many modern boilers installed in American and Canadian mills during the past few years reports a considerable number of individual boilers with an aggregate of 329,071 square feet of boiler heating surface and 318,742 square feet of air preheater surface, a ratio of very close to 1 to 1.

This is not to be interpreted as establishing any definite rule or practice, of course, for there have been a considerable number of other highly efficient and effective boiler installations made in paper mills which have included no air preheaters whatever and still others where the ratios between air preheater, economizer and boiler heating surfaces have been very different. In some cases, more dependence has been placed upon air preheaters for the reclamation of flue gas heat and in others the heat salvage has been effected in greater part by fuel economizers. Local conditions and requirements, as well as differences of opinion as to the most effective method of extracting all possible useful heat from the gases of combustion and considerations of cost, have been responsible for this lack of standardization in the use of auxiliary equipment for securing efficient and economical boiler operation. These questions need not be enlarged upon here, however, for the aim of the present discussion is to focus attention simply upon the modern air preheater equipment available for flue

* For previous discussion on air preheaters see Paper Trade Journal, Jan. 23, 1930.



*Courtesy: Combustion Engineering Corp.*

FIG. 1

**Assembly details of plate type (recuperative) air preheater.**

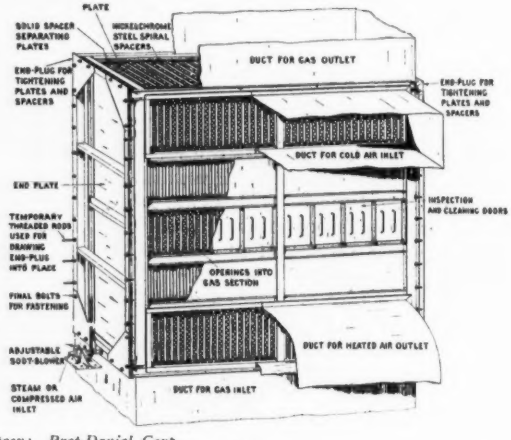
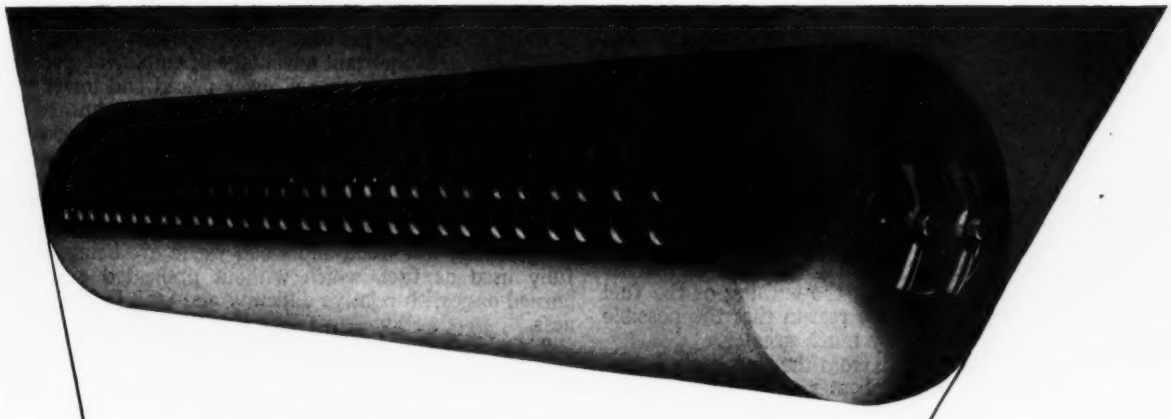


PLATE
SOLID SPACER SEPARATING PLATES
NICHROMCHROME STEEL SPIRAL SPACERS
DUCT FOR GAS OUTLET
END-PLUG FOR TIGHTENING PLATES AND SPACERS
END-PLUG FOR TIGHTENING PLATES AND SPACERS
DUCT FOR COLD AIR INLET
END PLATE
INSPECTION AND CLEANING DOORS
TEMPORARY THREADED RODS USED FOR DRAWING END-PLUG INTO PLACE
OPENINGS INTO GAS SECTION
FINAL BOLTS FOR FASTENING
ADJUSTABLE SOOT-BLOWER
DUCT FOR HEATED AIR OUTLET
STEAM OR COMPRESSED AIR INLET
DUCT FOR GAS INLET

*Courtesy: Prat-Danial Corp.*

FIG. 2

**Diagrammatic assemblage showing construction of recuperative variety of plate air preheater.**



# Fusion Welded

## and all main welded seams X-Ray tested for soundness

Fusion Welding.

The Application of Fusion Welding to Pressure Vessels.

Testing Welded Construction During Production.

Scientific Control in Welding of Boiler Drums.

Develops New Technique in Electric Arc Welding.

Outlook for Welded Boiler Drums Brightens.

Advocates Electric Welding of Boilers.

Welded Boilers.

X-Ray Inspection of Welds in Pressure Vessels.

This all welded boiler drum was fabricated for The Brown Paper Mill, Incorporated, of Munroe, Louisiana. All main longitudinal and circumferential seams of this thirty-six inch diameter drum were welded by the new Babcock & Wilcox process and every inch of every seam has been examined with a powerful X-Ray machine to provide definite proof of the soundness of the welds which are consistently equal to or better than A. S. M. E. boiler plate in tensile strength, ductility, shock resistance, and ability to withstand repeated applications of pressure.

The Company's bulletin *Fusion Welding* describes in detail the characteristics of welds produced by this new technique and shows the tests employed to check the soundness of welds in finished products of all types. In addition to this book, The Babcock & Wilcox Company will send, without obligation, a series of articles on fusion welding written by leading writers for the technical press. Simply check the articles desired, sign this page and mail.

Pending adoption of the proposed A. S. M. E. Code for welded boiler drums The Babcock & Wilcox Company offers this construction only in Non-Code States and subject to the approval of the boiler insurance companies.

THE

# BABCOCK & WILCOX COMPANY

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gas heat salvage and to show by a few specific references how these devices are employed and what they effect in the way of heat conservation and fuel economy in power plants serving the paper making industry.

### Savings Effected by Air Preheaters

The heat laden air supply provided by modern air preheater equipment is employed for the most part in the boiler furnace for combustion purposes, though to some extent, as well, for drying services in both the power plant and the paper mill. Both these classes of service effect worthwhile savings, but that effected by virtue of the use of preheated air in consummating the burning of the fuel is of the greater interest for the reason that the possible monetary savings are apparently much greater.

The transference of the heat from the flue gases to the air passed through the air preheater and thence to the boiler furnace replaces in effect a definite weight of fuel otherwise consumed in the furnace, effecting a corresponding saving in the cost of power generation. The actual amount which will be saved can be predicted and measured by the number of heat units taken up by the air, a determination which can readily be made and which will be found frequently to represent a net saving of from 7 to 12 per cent. in fuel consumption. For each 35 or 40 degree elevation in the temperature of the combustion air, a saving of about 1 per cent. in fuel is effected and the recovery of heat from the flue gases may be carried to such point that the greater portion of the stack heat can be productively reclaimed and utilized. Considering the use of air preheaters alone in the reclamation of flue gas heat, stack losses of from 15 to 16 per cent., when no air preheater is employed, can be reduced to 5 or 6 per cent., when such heat reclaimers are used.

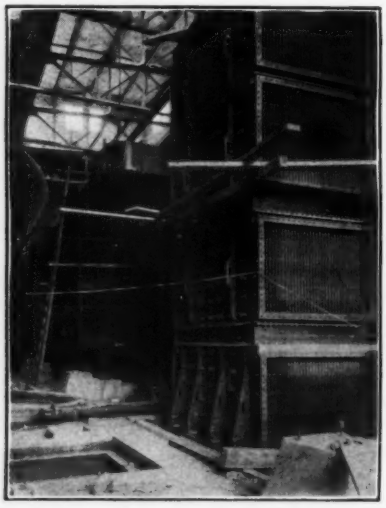
In addition to this highly desirable conservation of heat, there is an important saving attributable to the improved combustion resulting when heated air is employed. The fuel burns more readily and as a result the amount of excess air otherwise needed to assure satisfactory combustion can be reduced. The carbon dioxide content of the furnace is increased and the percentage of combustible lost in the ash pit is generally reduced, owing to the more thorough burning of the fuel. These latter benefits may have the effect of elevating the savings attributable to the conservation and effective utilization of heat in the flue gases by as much as 30 to 50 per cent.

Still another important advantage of employing preheated air for combustion is that a lower priced and lower grade of fuel, one which may not be successfully burned with a supply of cold air, can often be successfully consumed when preheated air is supplied. In fact, there are cases on record where anthracite culm containing 40 per cent. ash, mine washer refuse running over 50 per cent. ash with a high moisture content, low grade coke breeze, bagasse, hogged fuel, wet wood and wood waste are being successfully used as fuel, which without preheated air can be burned only with relative difficulty and with little effectiveness.

These valuable aids in effecting heat conservation and fuel economy, bettering the efficiency, economy and effectiveness of the boiler plant, are of two general varieties, one employing the so-termed recuperative principle of heat reclamation and the other the regenerative. Both varieties have proved highly efficacious in power plants of the paper making industry and in virtually every case they have been directly responsible for savings of very desirable magnitude.

### Recuperative Air Preheaters

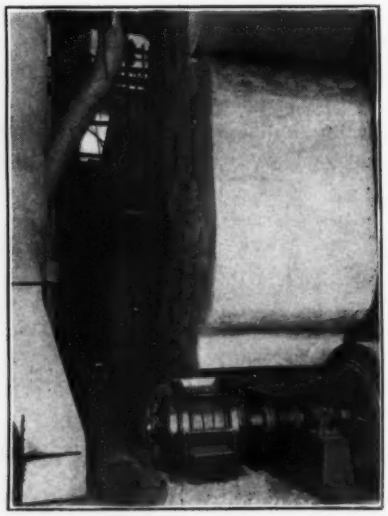
The recuperative type of air preheaters are either of plate or tubular construction and incorporate no moving parts, usually being built up in box-like sections of considerable size, arranged to conform to the space available for their accommodation. Ordinarily, the hot flue gases enter at the bottom of the heater and pass upward more or less vertically, while the flow of the air in the spaces surrounding the gas passages is customarily either across the directional path of the hot gases, first in one direction and then in the other, or else in the direction opposed to



*Courtesy: Foster-Wheeler Corp.*

FIG. 3

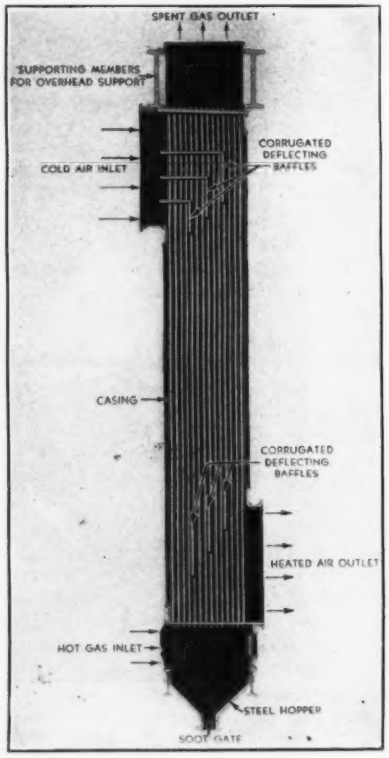
**Sectional plate (recuperative) type air preheaters in process of erection at the Mersey Paper Co.'s new power plant at Brooklyn, N. S.**



*Courtesy: Foster-Wheeler Corp.*

FIG. 4

**Sectional plate (recuperative) type air preheaters of the Mersey Paper Co. erected and insulated.**




*Courtesy: Babcock & Wilcox Co.*

FIG. 5

**Sectional view of tubular (recuperative) air preheater.**

# DILTS NEW TYPE

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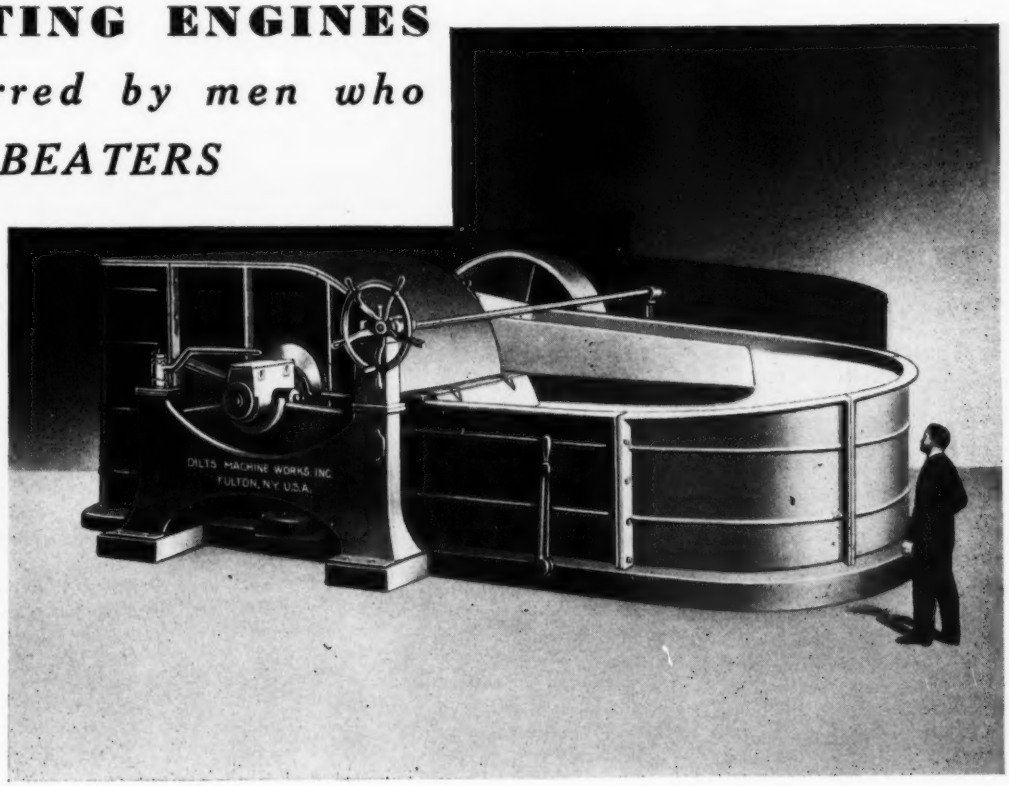


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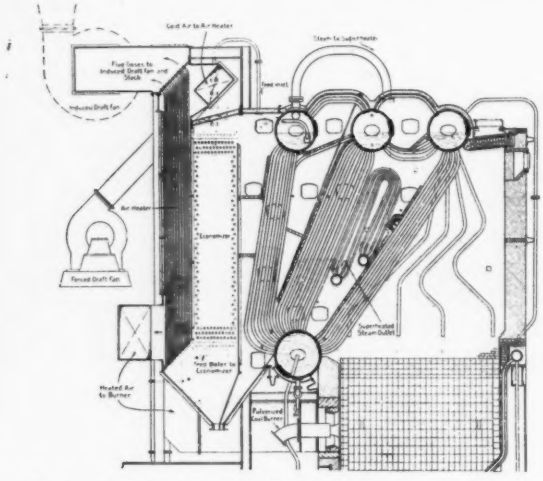
the flow of the hot gases, with perhaps one or more deflecting baffles to distribute the flow of air evenly throughout the heater. These general constructions are found in both plate and tubular air preheaters, as is clearly indicated in the several views of recuperative air preheaters shown.

In the plate variety of air preheater, the passages for the air and the gases are separated by only relatively thin metal walls, while in the tubular variety the hot gases travel through the tubes and the air passes around and about the tubes, the comparatively thin walls of the tubes separating the gases from the air. The counter current passage of gases and air is almost always resorted to. That is to say, the hot gases and the incoming air enter opposite ends of the preheaters, *i.e.*, the air supply enters the section of the heater from which the cooled flue gases leave and the hot flue gases enter the section from which the heated air leaves. This arrangement is conducive to the most effective transfer of heat from the flue gases to the air and makes possible the substantial rise in air temperature secured with well proportioned air preheaters of this character.

In one variety of plate air preheater, that, incidentally, being installed in the new steam plant of the Tennessee Paper Mills, Inc. at Chattanooga, Tenn., the individual preheater sections consist of series of vertical plate elements separated from one another by spacer bars in such a manner that the gas paths are upward through narrow straight passages between adjacent plates of alternate plate elements and the air passages follow downward "S" shaped paths, the air entering the upper part of the preheater sections and leaving at the lower. The thin streams of flue gases and air, flowing in different directions, opposed for the most part, and being separated only by thin metal plates of high thermal conductivity, insure rapid and effective transfer of heat from the gases to the air.

In the installation at the Tennessee Paper Mills, which is quite typical, these plate type air preheaters will be used to extract heat from the gases of combustion discharged by a modern bent tube boiler of 9,800 square feet of heating surface and fired on a duplex system of pulverized coal combustion. They will take the heat range of the flue gases from several hundred degrees Fahrenheit down to the final gas temperature, so reclaiming and making use of the major portion of the heat in the flue gases.

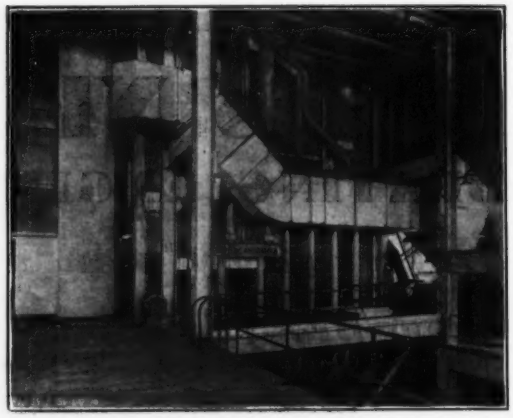
In another variety of plate air preheater, the successive plate elements are alternately separated by rectangular shaped frames made of either narrow bars or channels and




*Courtesy: Babcock & Wilcox Co.*

FIG. 6

**Steam generator at the Paul A. Sorg Paper Co.'s plant showing location of tubular air preheater.**



*Courtesy: Foster-Wheeler Corp.*

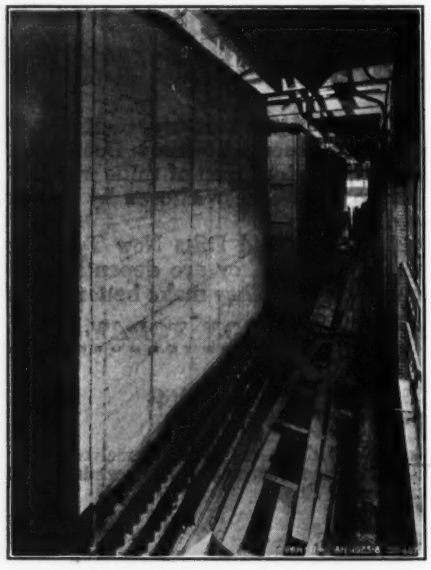
FIG. 7

**Air duct and tubular (recuperative) type air preheater at the Gatineau steam plant of the Canadian International Paper Co.**

by spiral spacers of non-corroding alloy steel. The passages formed by the solid spacers are for the accommodation of the air and those formed by the spiral spacers are for the passage of the hot flue gases. As is customary, the general direction of flow of the gases is upward and of the air downward. This construction makes an assemblage which provides marked flexibility under the thermal strains developed in service, insuring a tight joint between all plate elements and spacers.

One of the air preheater assemblages installed at the plant of the Babbitt-Kelley Company, Inc., Bellows Falls, Vt., heats some 85 per cent. more air than the volume of the flue gases liberated by the boiler furnace to a temperature of 250 degrees Fahrenheit, cooling the flue gases to 300 degrees from 600 in so doing. The excess of heated air beyond that required for combustion service is intended for speeding the drying of the paper, the hot air being blown on the rolls.

Another installation of the same variety of plate type recuperative air preheater is at the plant of the West

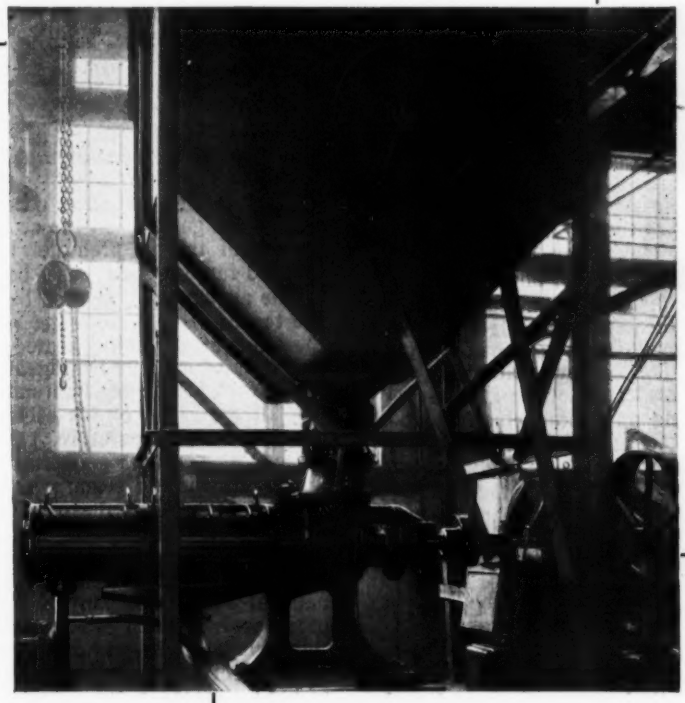


*Courtesy: Foster-Wheeler Corp.*

FIG. 8

**View of aisle behind boilers at the Gatineau steam plant showing tubular type air preheaters.**

# THE "SCREW PRESS"
## -- a new topic of discussion



## CAPACITIES

**No. 1 Press**

| | Entering | Discharge | H.P. |
|---|---|---|---|
| Sulphite | 3% | 40% | 5 |
| Rag Half Stock | 4¾% | 50% | 13 |
| Repulped Papers | 10% | 60% | 13 |
| Insulite Board Stock | 6% | 52% | 15 |

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BECAUSE of numerous requests, and because of the important part which the Valley Screw Press is playing in pulp and paper mill progress—complete testing facilities have been installed in our shops.

Now you can submit your own dewatering problems to our Technical Department and have regular tests made. Definite results can be determined and cost saving possibilities demonstrated prior to an installation in your mill.

We are finding many new applications of the screw press for paper mill use. Cost savings are constantly being unearthed. For instance, one mill in a recent installation is saving from forty to fifty dollars daily by the use of a screw press in connection with a white water problem.

There is undoubtedly a place for a Screw Press in your mill. We solicit consultation with you concerning your dewatering problems and will be glad to run comprehensive tests for you in our testing station. Write the Valley Iron Works Company, Appleton, Wisconsin.

Dudley Paper Company at West Dudley, Mass., where the flue gases are cooled from 650 to 407 degrees Fahrenheit and the air is heated from about 70 degrees to 323 degrees. This rise of better than 250 degrees in the temperature of the air supplied for combustion of the oil fuel used at this plant effects an improvement in boiler efficiency of about 7 per cent.

At the new boiler plant of the Mersey Paper Company, Brooklyn, N. S., completed only a little over a year ago, a four section air preheater of the recuperative plate type extracts a large proportion of the flue gas heat liberated from 900-horsepower, pulverized coal fired, steam generators. These heat reclaiming units contain a total of 9,380 square feet of heating surface per boiler and the heated air is distributed to four places, to the feed end of the pulverizer preparing the fuel for combustion, to the powdered coal burners and to the secondary air ports in the front walls of the boilers.

The construction of the assembled air preheater units is such that the gases enter at the top and flow downward through the four sections, leaving at the bottom, while the air first enters the bottom section and, after flowing horizontally through the four sections in turn, leaves at the top. This arrangement creates a complete counter-current flow of air and flue gases to secure maximum heat recovery. This is so effectively consummated that at the highest rating the air preheaters effect a fuel saving in excess of 8 per cent, giving an overall efficiency to the steam generating unit of better than 83 per cent.

This attainment is noteworthy, for in addition to the heat recovery effected by the air preheater, the use of preheated air is invaluable in fuel preparation. In fact, the efficient pulverizing and burning of the grade of coal used in this particular plant is attributable in large measure to the effective functioning of the air preheater installation.

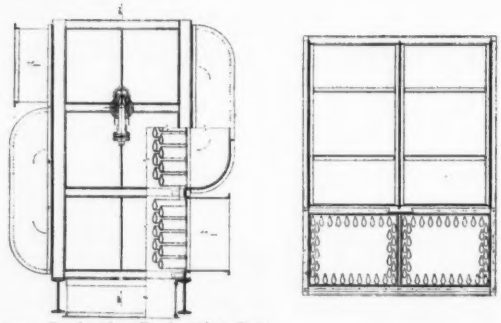
Straight vertical tubes for the passage of the hot flue gases, about which the air supply percolates in its travel from end to end of the preheater in counter-current flow, and horizontal nests of tubes for the conveyance of the air supply through the vertical stream flow of hot flue gases are the two general constructions adopted for tubular air preheaters of the recuperative variety. In the straight gas tube construction, the vertical flow of the gases is either upward or downward, while in the other general form of construction the flow of the exhaust from the boiler furnace is usually upward.

In the vertical, straight gas tube, preheater installation at the plant of the Paul A. Sorg Paper Company, Middletown, O., the heat reclaimer is located back of and

*Courtesy: Foster-Wheeler Corp.*

FIG. 9

**Close-up of tubular air preheater at Gatineau showing baffles placed in the cold air inlet to prevent air short circulating**



*Courtesy: Combustion Engineering Corp.*

FIG. 10

**Diagrammatic layout of tubular (recuperative) type air preheater.**

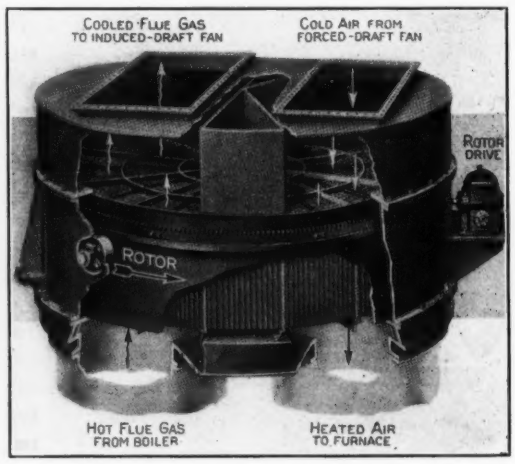
adjacent to the economizer used for heating the feed water supply, the gases from the economizer entering the lower portion of the air preheater being drawn upward by an induced fan, the spent gases being discharged to the stack.

The air supply, delivered by a forced draft fan, enters the top of the air preheater and an even distribution of the air over the entire heated tubular surface is secured by virtue of suitably arranged baffles.

For each 100 degree Fahrenheit decrease in the temperature of the gases, or for each 100 degree Fahrenheit increase in air temperature, passing through the air preheater there is, with good furnace conditions, an increase in the efficiency of steam generation of between 2.25 and 2.50 per cent. This means a saving of from 5 to 10 per cent. in fuel consumption, with the pulverized coal firing employed at this plant.

At the Gatineau steam plant of the Canadian International Paper Company, where pulverized coal is also used for fuel, the 1,340-horsepower boiler units are provided with straight gas tube air preheaters containing 17,820 square feet of heating surface, through which the flow of hot flue gases is downward and the general path of the air supply upward. The gases from the four air preheaters flow to a common flue on the ground level, three induced draft fans delivering the spent gases to the stack.

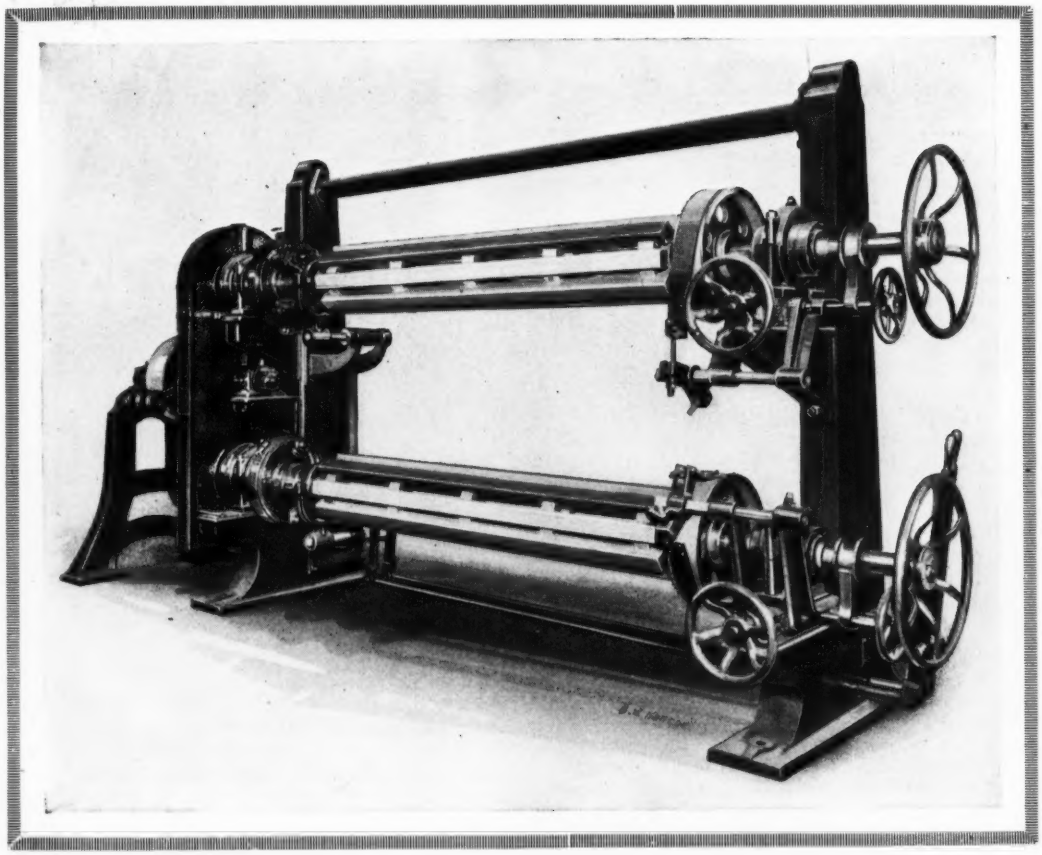
The air preheaters are proportioned to reduce the flue gas temperature from 625 to 340 degrees Fahrenheit and in so doing to heat the air for combustion from 70 to 415 degrees Fahrenheit. Part of the delivered hot air supply




*Courtesy: Air Preheater Corp.*

FIG. 11

**Regenerative type air preheater indicating customary directions of gas and air flow**



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- **IMPROVED BELT TENSION ADJUSTMENT**
- **LARGE BRAKE WHEELS WITH ASBESTOS LINING**
- **REEL DRUMS ADJUSTABLE LATERALLY AND LENGTHWISE.**

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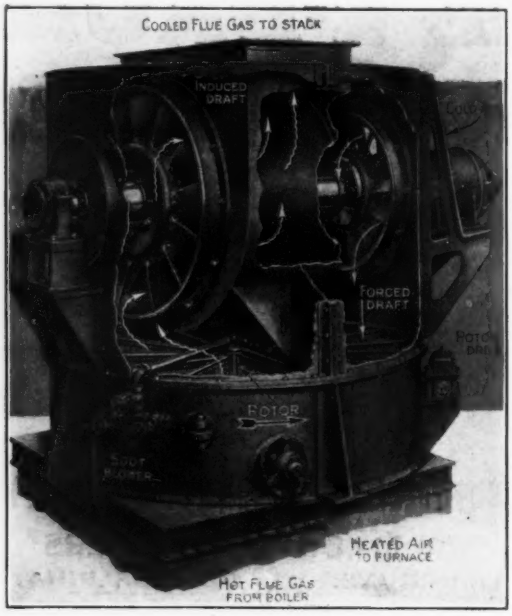
is used in the pulverizers for mill drying the coal and the balance is introduced as secondary air at the boilers. High continuous overall efficiency is secured, 82 per cent. during normal operation, of which the air preheating can be credited probably with 8 to 10 per cent.

Where tubular type air preheaters, built up of sections through which the air passes through nests of horizontal tubes in a downward stepped passage, the hot flue gases flowing vertically upward through the various heater sections, are used, or in installations of similar equipment in which such directions of flow are reversed, the principal advantages of the construction are that the several sections are removable and interchangeable. A very flexible and adaptable assemblage results and a complete and efficient utilization of heating surfaces is afforded. A permanently installed soot blower unit is sometimes a refinement which serves to maintain the high efficiency in heat reclamation attained where this variety of recuperative air preheater has been installed.

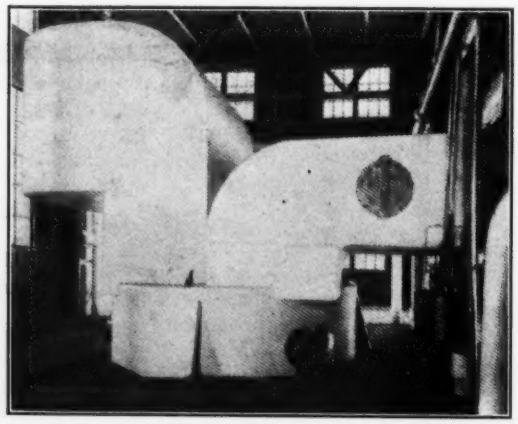
In the regenerative variety of air preheater, which for like capacity is much more compact than are units of the recuperative variety, the principle employed is that of alternate heating and cooling the transfer, or heating, elements as they are slowly carried successsively through streams of hot flue gases and of the cooler air to be heated. These transfer elements, made up of corrugated metal sheets alternating with undulated sheets, are assembled to fill sector-shaped cells in a slow revolving rotor section, the rotor compartment carrying the mass of honeycomb arranged metal through alternate columns of hot flue gases and of cooler air supply. In the heated path, or hot section, the relatively high temperature flue gases elevate the temperature of the heating elements sharply, as they pass through the porous mass of metal, and in the cold section the heating elements give up the heat they absorbed to the air supply, which in turn percolates through the mass of metal. The rotor section, made up of the heating elements, moves continuously through the columns of hot flue gases and of the air supply, transferring heat from the one to the other so efficiently that it is claimed that as much as 70 per cent. of the heat contained in the flue gases can be transferred to the combustion air supply.




*Courtesy: Air Preheater Corp.*

FIG. 12

**Regenerative type air preheater incorporating integral induced draft fan for gases, forced draft fan for air and soot blower for cleaning purposes.**



*Courtesy: Air Preheater Corp.*

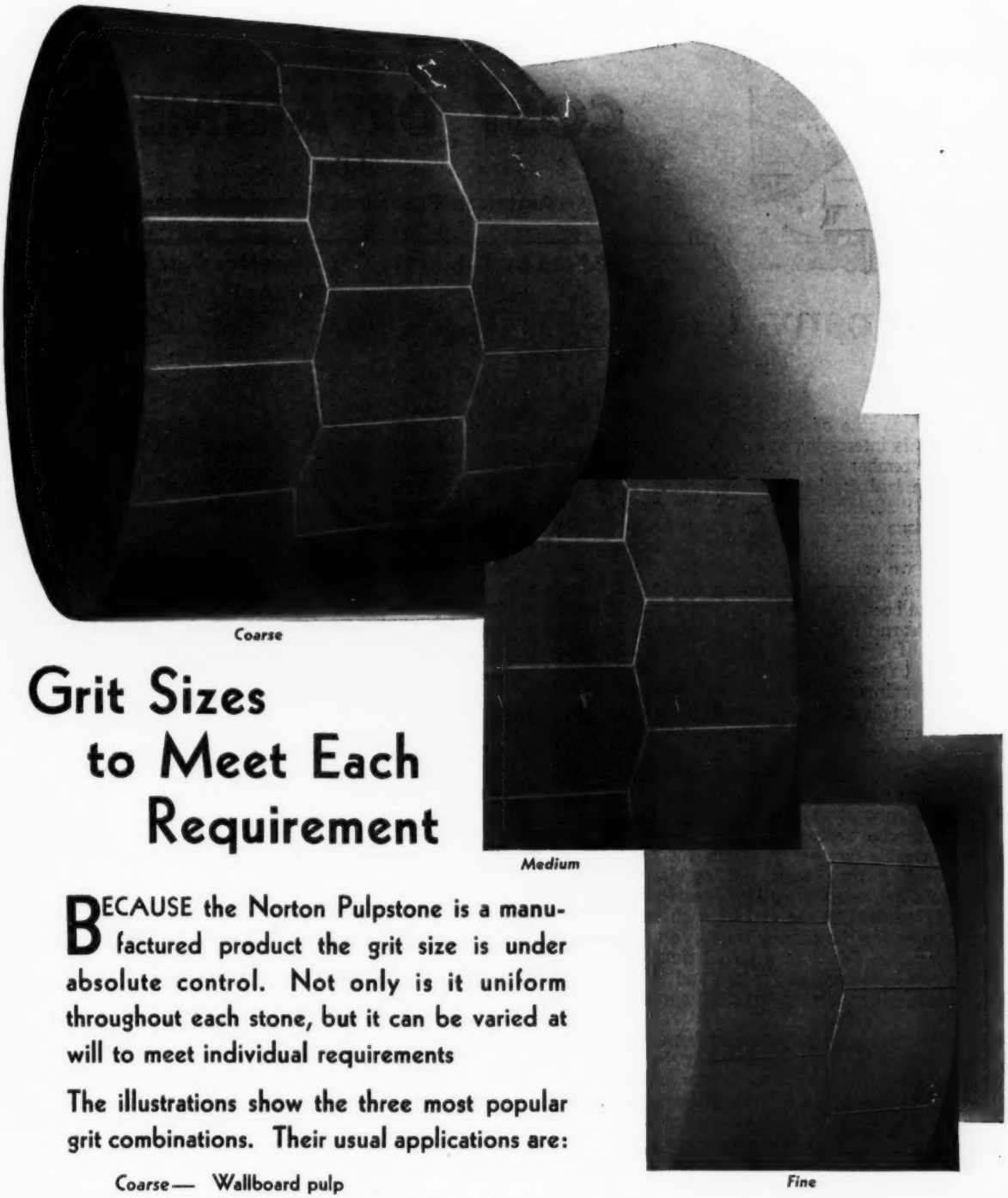
FIG. 13

**Regenerative air preheater at the Tyrone plant of the West Virginia Pulp & Paper Co.**

At both the Covington, W. Va., and the Tyrone, Pa., plants of the West Virginia Pulp and Paper Company this variety of air preheater is in use and in both installations the results secured are reported to be of high order. At the Tyrone plant, the two 600-pound pressure boilers, fired on pulverized coal and each containing 8,460 Square Feet of heating surface and delivering 100,000 pounds or more of steam at 750 degrees Fahrenheit per hour, have the temperature of their flue gases reduced from 600 to 300 degrees by these regenerative air preheaters. In so doing, the temperature of the combustion air supply is elevated to 550 degrees and as the steam demands vary greatly the supply of hot air greatly facilitates meeting steam demands during peak periods and, as well, saves considerable fuel, particularly when the plant operates under smaller loads. Quicker and more complete combustion is made possible and smoother operation is realized under all conditions.

The daily boiler efficiency of 83 per cent. attained at the plant of the Champion International Company, Lawrence, Mass., with two 522-horsepower, stoker fired, steam generators is said to be due to a substantial degree to the fuel saving effected by regenerative type air preheaters, which raise the temperature of the combustion air to 390 degrees Fahrenheit and cool the stack gases to 445 degrees. This attainment, incidentally, has been realized while operating the boilers at under 150 pounds pressure per square inch, with a moderate superheat of 80 degrees. Under normal conditions, this plant will generate steam at 390 pounds per square inch, with 154 degrees of superheat at 200 per cent. of rating, under which conditions much greater opportunities for waste heat recovery are provided and the air preheaters will doubtless prove a much more profitable investment.

The use of these regenerative air preheaters is particularly desirable in plants where wet wood or hogged fuel with high moisture content is burned, as was brought out in the discussion in these columns of January 23, 1930, owing to their ability to recover as much as 70 per cent. of the heat rejected by the boiler furnace. An indication in this high heat recovery capacity is given in the attainment at the Tyrone plant of the West Virginia Pulp & Paper Company, where the combustion air supply is heated to a temperature of 550 degrees in cooling the flue gases from 600 down to 300 degrees Fahrenheit.



Coarse

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# COST DEPARTMENT

of the

American Paper and Pulp Association

Edited by T. J. Burke C. A. Director Cost Dept.

# Company Unemployment Reserve Plans*

By Morris E. Leeds,[1]

The Gleason Works of Rochester, makers of machine tools, report this interesting experience:

"Early in December we sent out letters to 242 employees who had been laid off between September 1, 1929 and December 1, 1930, having been in the employ of the company for one year or more, requesting them to call at our Employment Department for an interview. In this interview we endeavored to determine just what the conditions were among these former employees, whether or not they had been able to find full or part-time employment, and to learn of their immediate needs.

"Fifty-two of these men had found employment, 21 were not heard from; the other 169 had been unable to find regular employment and many of these were very much up against it. A check equal to one week's pay was given to each of these 169 men as a Christmas present, and on January 1st, 79 of the men were put back to work, room being made for them by the regular working force agreeing to take one week of vacation in every four; in other words, to work three weeks and be off one week. The other men who were not able to be taken back were assured one week's pay every month for the next four months, providing they were not regularly employed, temporary jobs not being taken into consideration. These checks are being paid at the end of each month and all that is necessary for the former employee to do is report in the Employment Office at a stated time once a week so that we can keep a check on him and if possible find him employment either in our own or another organization.

"Many of these receiving this pay each month may never again be employed by the company, but the management felt a certain responsibility for these men and was glad to do something to help them tide over the winter. While these men would have been much happier to render service for this money, nevertheless they appreciated the fact that the company could not give them this if they had none to give and doubly appreciated the company's attitude toward them as expressed by its desire to help them during this most trying period."

### Many Similar Experiences

I believe that very many employers have had a similar experience. During the past winter, while endeavoring to collect money to be used by Philadelphia in taking care of its unemployed, I had occasion to talk to a number of manufacturers, and I found that without exception they were doing what they could by spreading employment and by making actual payments to people whom they had found it necessary to lay off and who were still unemployed. It seems reasonable to expect that many concerns which have gone through this experience would like to make plans to provide funds, out of the earnings of good times, which may be used to give assistance to their workers who may be laid off in periods of depression, and that therefore a discussion of the possibilities of such plans, how they can be put into effect, and how they may be expected to work out, is timely and important.

Until very recently, the activity in this direction was negligible. Bryce Stewart, in his book "Unemployment Benefits in the United States," enumerates only thirteen companies that had such plans prior to 1929, covering in all only 8,500 workers. Two of these benefit arrangements were later abandoned. Since that time the General Electric Company has announced its plan. Some associated industries in Fond du Lac have also inaugurated a system of unemployment benefits, and a group of employers in Rochester have done likewise. Doubless there are others about which I do not know, but even so, the total number is a very small fraction of the total number of employers and provides for an almost insignificant proportion of the wage earners.

### Considerable Range of Method and Aim

The plans which have been in operation and which are proposed show a very considerable range of method and aim. They vary in their methods of providing funds for unemployment relief, in the ways in which they give assistance to the unemployed and in the rules under which benefits are disbursed, etc.

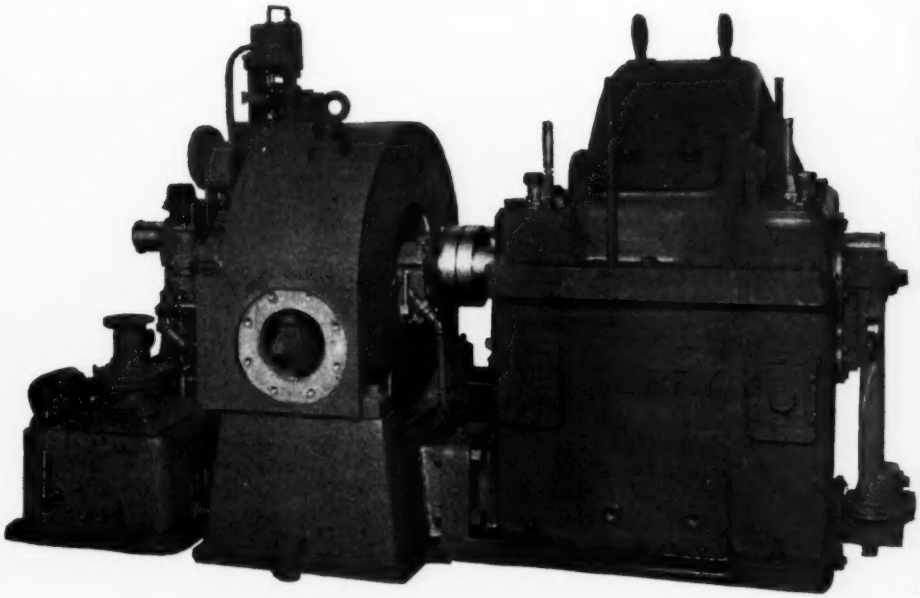
In most of the plans the entire benefit fund is contributed by the industry. There are exceptions, however, of which the General Electric Company is a conspicuous example. Under their arrangement some contribution is made to the fund by the employees who are eligible to receive benefits from it.

Contributions to unemployment benefit funds already established have not always been on a systematic basis, but were made in many cases from time to time as officers or boards of directors would determine. In other instances, payments to the fund were made on a regular and predetermined basis, such as a certain percentage of payroll, which seems a much better policy. In these cases an upper limit to the amount which is to be contributed is sometimes specified, and is stated as a percentage of current payrolls.

* Address given before Dept. of Manufacture, U. S. Chamber of Commerce, Atlantic City, N. J., April 30, 1931.

[1] President, Leeds and Northrup Co., Philadelphia.

# TERRY
# Paper Machine Drive



*400 H.P. Terry Paper Machine Drive. 6:1 speed range. Equipped with remote speed control.*

## TEN INSTALLATIONS IN SIX YEARS FOR ONE COMPANY

**In 1925 one of the country's largest paper manufacturers installed its first Terry Turbine Paper Machine Drive. The unit was so satisfactory and showed such a marked improvement over previous practice that two more units were shortly added.**

**Since then, as expansions have been made and new mills built, Terry units have been purchased exclusively. Today the ninth and tenth machines for this company are under construction.**

**A request on your letterhead will bring a description of these drives. Ask for bulletin S-89 or consult a Terry engineer.**

**The TERRY STEAM TURBINE COMPANY**
TERRY SQUARE, HARTFORD, CONN.
**Steam Turbines - Gears - Shaft Couplings**

T-1080

**Practice Not Uniform**

Practice is not uniform in regard to the method of keeping funds which are set aside for unemployment benefits. Under some arrangements they are simply a matter of bookkeeping entries and are held with the other funds of the company. This is, of course, a perfectly satisfactory procedure with large companies which are financially strong. In other cases, the funds are placed in trust for the particular purpose and are thus not at the hazard of the business, which seems advisable for smaller and weaker organizations.

Some plans guarantee continuous employment for a definite amount of time each year, such as the well-known one of the Procter & Gamble Company, which assures forty-eight weeks of work to all of its regular employees of standing. The Fond du Lac plan is of particular interest in this connection because there a group of diversified industries cooperate in guaranteeing employment and do so by arranging for the transfer of employees from one industry to another as business conditions and labor requirements change. In addition, this group is accumulatting a fund in order to provide unemployment benefits for those of their workers whom they cannot place.

Generally, when funds are accumulated they are used in periods of depression for outright payments to the unemployed, but the General Electric Company intends to use a part of its fund for loans; and in some other cases the funds are used to pay for work which under normal circumstances would not be done, but is arranged during slack times in order to increase employment.

**Benefit Rules Vary Greatly**

The rules under which benefits are paid vary greatly, starting in some cases as soon as unemployment occurs, and in others beginning only after two or three weeks of unemployment. In some instances these payments continue for a uniform and definite period, such as thirteen weeks, while in others the time is variable, depending on the length of employment of the individual in question, ranging from three weeks for employees of three months standing and running up to a maximum of twenty-six weeks for employees who have been with the company for five years. The amount of the benefit payment is generally related to salary. Some arrangements provide for a fixed percentage salary, such as 60 per cent or 80 per cent, while in others the percentage varies with the dependents which the unemployed individual has. There is very rarely any positive guarantee covering these payments. In some cases the companies make no statement of intention at all; in others they do not indicate how long the unemployment benefit plan will be kept in force, and in still others the statement is made that funds will be disbursed, under the rules, as long as accumulations made for the purpose last. The lack of experience in the administration of such funds and the fact that small individual companies could not work on the basis of averages make guarantees practically impossible.

It would be interesting to know how these various plans have met the needs of a major depression, but as we are now in the midst of the first one that has occurred since most of them were established, the information is not yet available. However, I can give you some data in regard to the Unemployment Benefit Plan of our own company and its operation.

**Fund Control Vested in Committee**

Control of our fund is vested in a committee of 5 members of whom 3 are appointed by the Council of our Cooperative Association, and two by management. Only employees whose annual compensation is $2,600 or less are eligible for unemployment benefits. Such benefits are paid (at the rate of 75 per cent of wages for those having dependents and 50 per cent for those without dependents) to those discharged, laid off, or working less than the regular 44-hour week. Duration of benefit payments is regulated by length of service and ranges from 3 weeks for 3 months' service to 26 weeks for those who have served 5 years. Those who work on a reduced schedule are compensated for the time lost in the same proportion as those who lose full time. Benefits cease if the recipient gets another job, but may be reinstated if he loses or leaves that job and has not yet received all payments due him.

The fund was established in January, 1923 and by January, 1930, contributions of $68,000 made by the Company, together with interest accumulations, brought it up to $82,000, the required maximum of twice the largest weekly payrool in the preceding twelve months. Prior to 1930, demands of the fund had been small, and benefits paid had been adequate to bridge the period while the recipients had been finding other employment. Since then, however, demands have been much heavier, as might be expected. Separation allowances have been paid to 108 people, and 580 have received compensation on account of part-time. Under the rules, $35,000 has been paid, and an additional $6,000 will probably be necessary if the present rate of part-time operation continues for several months. With allowances for interest, not much more than half the fund will be needed to meet these demands, leaving nearly $40,000 to be used in case still further reductions in force are found necessary, though we hope now that this will not be the case. Of the employees eligible for benefits, 36 per cent who were completely laid off found new jobs before their benefits ceased, a good record under existing conditions, while 55 per cent did not succeed in obtaining employment before their benefits ran out. The remainder, about 11 per cent, did not apply for benefits.

**Keep in Touch With Needy Cases**

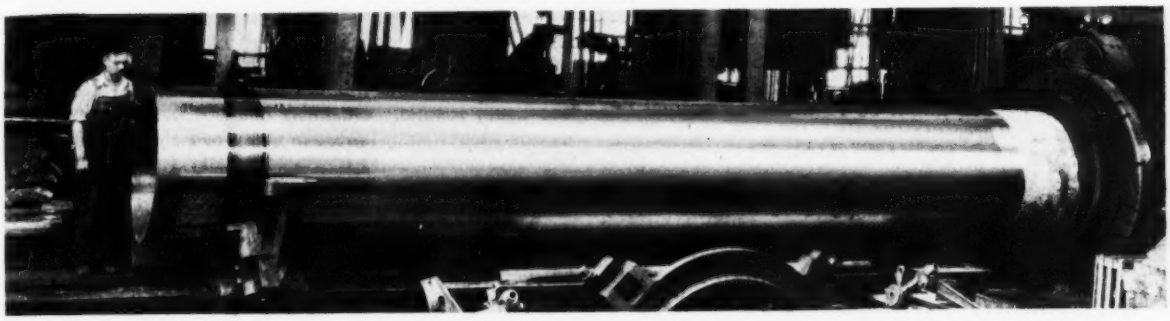
We keep in touch with those whose benefit payments have expired and who are still on short time at our plant or were laid off and have not yet found other work, and provision is made for them through loans from the regular Unemployment Benefit Fund or gifts from a special fund created by those who have been fortunate enough to remain on full pay. Only eighteen applications for such loans from the regular fund have been received, and these were for small amounts each week. Contributions from our employees to the special fund for unemployment relief amounted to over $7,300.00. Letters were sent to all those laid off who had not secured employment elsewhere, and other steps were taken to learn of all possible cases where need might exist. Nine of our employees were thus assisted, $403.00 from the special fund being expended in this way. When it was apparent that the needs of our own people had been met, $5,500,000 from this emergency fund was sent to the Lloyd Committee for Unemployment Relief in Philadelphia. The balance being held in case of future need among our present employees who are on short time.

This brief and imperfect review indicates the wide range of possibilities and shows how much room there is for study and analysis to determine what plans will be most satisfactory.

**Inadequate from Another Standpoint**

As already pointed out, the unemployment benefit arrangements now in effect or contemplated cover a very small percentage of the total number of employed workers. From another standpoint also they are decidedly inadequate. Most of them contemplate contributions to the

# YOUR BRONZE ROLLS



Rolls and roll covers of Sandusky Centrifugally Cast Bronze Tubing are used in nearly every modern paper mill in North America. Such an endorsement suggests the importance of specifying Sandusky Tubing for all equipment requiring bronze rolls or roll covers. Sandusky cast Tubing costs so little more than other materials that its use is always economical.

Other Sandusky products, including Shower Pipes, Foam Killers and Stuff Pumps are employed to advantages wherever operating economy is desired. Each is an engineered product, designed with the utmost attention to those small details of construction so important in assuring long and uninterrupted service.

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ROLLS—ROLL COVERS
BRONZE—BRASS—
ALUMINUM
COPPER—NICKEL ALLOYS
Diameters 4" to 46"—any length

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RUBBER COVERED ROLLS
EMBOSSING ROLLS
PRINT ROLLS
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SANDUSKY SHOWER PIPES WITH PATENTED WEAR ADJUSTMENT FEATURES

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SANDUSKY STUFF PUMPS DESIGNED ESPECIALLY FOR VARIOUS CONDITIONS OF STOCK AND SERVICE

The Paper & Textile Machinery Co.
Sandusky Ohio.

fund of 2 per cent of the payroll, or possibly three per cent or four per cent. Such statistics as are available (and it must be admitted that the figures are by no means reliable) indicate that through good years, from about 1920 up to the present time, there have been on the average nine per cent of our approximately 30,000,000 non-agricultural workers unemployed. Even if we assume that 4 per cent of this might be regarded as normal unemployment and represents the time that, on the average workers are out of a job while shifting from one position to another (and this is a rather large assumption because it would infer that each worker spends two weeks every year thus unemployed) there would still be left some 5 per cent to be taken care of, whereas contributions to the few unemployment benefit funds which have been established range from 2 per cent to 4 per cent of payroll and would probably average more nearly the smaller figure. From this it will be seen that even if all of the employers in the country were to adopt such plans as are now in use, there would still be a very considerable amount of unemployment to cope with.

**Must Stabilize Employment**

It is obvious that if American industry is to meet this situation, it must eliminate a large part of the unemployment by stabilization of employment rather than by providing funds out of which to stabilize the worker's income when he is unemployed. It would seem that both lines of attack must be followed, because the amount of unemployment under existing conditions is so large that we cannot hope to deal with it adequately by any plans for the stabilization of industry that are now envisaged, and we must therefore, in addition, put some dependence on such measures as have been described for stabilizing the worker's income. Society will insist that industry deal with the situation in some way, and if it does not do so voluntarily, will resort to compulsory legislation. It seems that such an organization as the Chamber of Commerce of the United States might perform a very helpful service by investigation and analysis of the plans for company unemployment insurance now in effect or contemplated, so as to be in position to recommend to any industry or group of industries those which would be most suitable, and that in addition to this, it could be very useful in stimulating interest in the subject through its numerous constituent organizations. Obviously such interest must be enormously stimulated if industry is voluntarily to adopt reasonably effective plans for meeting the unemployment situation.

## Changes Made in Whyte Paper Co.

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., June 8, 1931.—Important changes in the personnel of the old established Toronto wholesale paper house, the Whyte Paper Company, were announced this week by the president, A. Whyte, who has taken in with him as vice-president, J. H. Hooke, a former widely known executive of Brown Bros., Ltd., wholesale paper dealers, bookbinders, etc. The firm will now operate under the name of Whyte-Hooke Paper Company, Ltd., their activities being paper merchants and mill representatives, with warehouse and offices at 119 Adelaide street West. They are adding a number of new lines of fine papers and will also handle bookbinders' supplies. The well-known line of Davey mill board will also be distributed by them, while another important representation is that of the Peebles Pennon leaf adhesive paper used largely for labels. Both Mr. Whyte and Mr. Hooke are widely known in the paper trade throughout Canada and the firm's rapid expansion is looked for.

## Paper Demand Dull in Indianapolis

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., June 8, 1931—Dull business continues to be the rule in the local paper market. There are some orders, of course, but the market trend is sluggish and price concessions are not the solution. This has been tried by some few jobbers and some manufacturers with the usual results. Business has not been stimulated and as one jobber said, "there is going to be just about so much paper business done in this territory this summer and it will be done in spite of prices, so therefore I refuse to make concessions that wipe out all legitimate profit. There might be some sense to concessions if by making them a big volume of business could be built up, but under present conditions no amount of low prices can possibly increase volume. In the first place the consumers are working with stocks just as low as they can and buying as they are, with no attempt to build up reserve stocks and take advantage of the market, there is no sense at all in wiping out your own profit."

Container manufacturers say the market is pretty well shot and they are looking for little business until fall at least. Not only is demand off, but prices are at rock bottom. The board market seems a little better situated than most grades but the volume is nothing to brag of. Some call is being received for building papers; roofing and siding papers have not moved as they should this spring, largely due to poor building conditions and the lateness of spring. Retail stocks have been held low, however, and an increasing demand on the retailer is forcing them into the market.

The paper stock market here is in a deplorable condition. Prices are the lowest they have been for years and the local warehouses are bulging with stock waiting for better prices.

Tissues and other specialties are dragging along. The first spring rush over, they have settled back into the old rut. Dealers bought rather heavily just before summer broke and most of them still have ample stocks to carry them a while.

## Paper Mill Employment

Reports were received by the Bureau of Labor Statistics, Department of Labor from 264 Paper and pulp mills which gave their March employment at 58,471 with the identical number employed in April. Weekly payrolls in these same mills, on the other hand, decreased from $1,444,127 in March to $1,414,253 in April a decrease of 2.1 per cent.

The Bureau also received reports from 312 paper box factories which gave their March employment at 24,212 increasing very slightly in April to 24,230, an increase of 0.1 per cent. Weekly payrolls in these same factories, on the other hand, decreased from $537,994 in March to $532,222 in April, a decrease of 1.1 per cent.

## Naval Stores Year Book Issued

Gamble's International Naval Stores Year Book for 1931-1932 has just been published by Thomas Gamble, Savannah, Ga. This is the ninth edition of this valuable work, which contains a wealth of general information and statistics regarding the naval stores industry.

With the aid of innumerable charts and tables, the year book presents a picture of production, distribution, consumption, market movements and visible supplies, which helps the reader to form a clearer understanding of what has happened and what may come about in the months of the naval store year of 1931-1932.

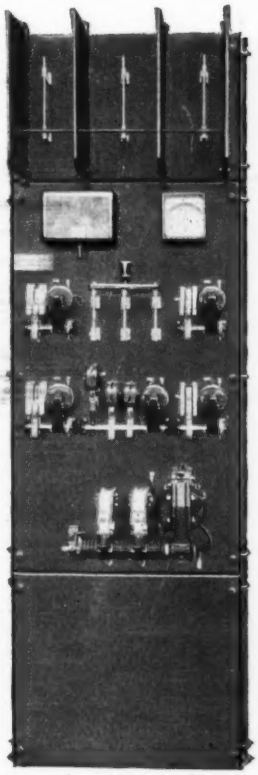
# Now Ready!

## DUAL-FREQUENCY SUPERCALENDER DRIVES
### *for all commercial voltages and frequencies*

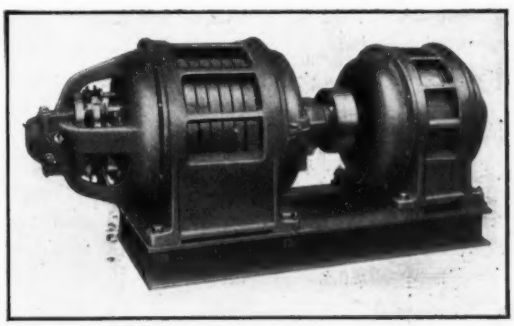
GENERAL ELECTRIC has produced a new type of low-frequency power generator, which makes possible the application of dual-frequency supercalender drives on all commercial voltages and frequencies.

The usual threading motor with its attendant gearing and overrunning clutch has been eliminated. Instead, one large a-c. motor direct-connected to the supercalender is used, low-speed operation for threading being obtained by operating this motor directly from the low-frequency generator. Normal operation is obtained by throwing the drive over to the regular mill power supply. It is also possible with this system to take advantage of voltages above 550 volts — the upper limit thought economically practical until now.

Inherent in this development are many distinct advantages of low first cost for group or battery operation, unusual flexibility, great mechanical simplicity, and reliability. All have been realized in an installation that has been in successful operation for six months in a large eastern paper mill.



*G-E control for 2200-volt dual-frequency supercalender drive*



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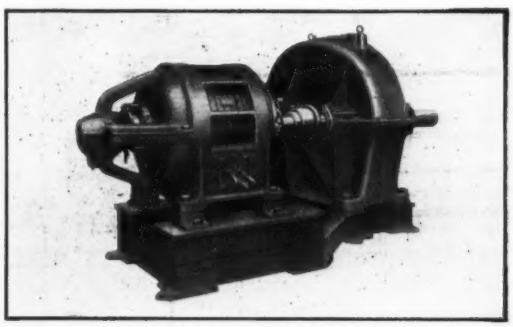

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# PAPER TRADE JOURNAL

ESTABLISHED 1872

Published at 34 North Crystal St., East Stroudsburg, Pa. Executive and Editorial Offices, 10 East 39th St., New York, N. Y.

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Price, Per Copy, 10 Cents — United States, Per Annum, $4.00
Canada and Foreign Countries in Postal Union, $6.00

Member Audit Bureau of Circulations

Vol. XCII New York, June 11, 1931 No. 24


## PAPER AND THE DEPRESSION

John A. C. Kavanagh, director of the Statistical Department of the American Paper and Pulp Association, has prepared the following timely survey for the PAPER TRADE JOURNAL:—

The questions are frequently asked, "How does the paper industry react in periods of depression?" "Are its operations as seriously affected as those of other industries?" "How serious is the effect in regard to reduced labor and pay-rolls?" Taken as a single unit, the paper and pulp industry is fortunate in that its operations are less seriously affected than is the case in most industries and as a consequence, there is a greater degree of stability in employment and pay-rolls. Profits, however, are a different story. They were suffering even when business was booming in 1929. Different degrees of stability, however, obtain in the different sections of the industry.

### RELATION TO GENERAL BUSINESS TRENDS

Although the general trend of industrial operations started downward from the boom peak in July, 1929, the rate of decline did not become serious until about October coincident with the crumbling of the stock market. Operations in the paper industry reflected the slump in general business but the slowing up of operations was more orderly and the decline relatively more moderate. General business showed signs of improvement during the early part of 1930 and this was reflected at the same time in the paper industry. When the further decline in industrial operations set in about the middle of 1930, the paper industry again followed the change in trend and continued downward throughout the remainder of 1930 but remained at a higher level than industry in general. Allowing for seasonal variation, improvement was again shown in the early months of this year in both general industry and the paper industry. Indexes prepared by the Federal Reserve Board based on data compiled by the American Paper and Pulp Association show that the paper industry did not lag behind general industry in 1930 and 1931 when improvement in operations occurred.

The United States Bureau of Labor Statistics indexes of pay-rolls and employment indicate that wages or employment did not decline until six months after a downturn occurred in industry in general. Like production, employment and pay-rolls were on a higher level than was the case for general industry.

Indexes prepared by the American Paper and Pulp Association based on figures reported by members and cooperating organizations including the Writing Paper Manufacturers Association, Paperboard Industries Association, and the News Print Service Bureau showed some interesting facts. An index of total United States paper production showed a downward trend throughout 1930 and it would be natural to expect pulp production to follow the same course, but such was not the case. In the first quarter of 1930, the total United States pulp production ran above the level of 1929 and in addition, the United States imports in the first quarter of 1930 ran above the level of 1929 in spite of the fact that the total production of paper was below the level of 1929. The American Paper and Pulp Association made a survey of pulp inventories among the purchasers of pulp and found that there was a large surplus of stocks of pulp at these mills and in warehouses.

### REACTION OF INDIVIDUAL GRADES

While operations in the paper industry were on a much more stable basis than for industry as a whole, there was a different degree of stability existing among the individual groups. The so-called cultural grades, news print, book and writing including cover and specialties, showed less stability of operation than did the board and wrapping grades. The latter, of course, suffered declines from the 1929 levels but these were spread fairly evenly over the entire year of 1930, whereas the cultural grades held up fairly well in the early months of 1930 and then fell off sharply toward the latter part of the year.

The cultural grades have as their backbone, the demand of the advertising, printing and publishing industries. The trend of advertising has naturally influenced the demand for the cultural grades of paper whereas board and wrapping papers supply a market that is more stable. The aggregate advertising in all major media, excepting radio, remains substantially below the corresponding period last year and magazines are now reflecting the business recession more fully while newspaper advertising has apparently attained some degree of stability. Past experience shows that advertising generally follows the trend of sales, and on that basis business must recover before advertising will show any improvement.

Radio has made noticeable inroads upon newspaper advertising and data compiled by Media Records show that 107 leading radio advertisers reduced their newspaper advertising 12½ per cent in 1930 while at the same time they

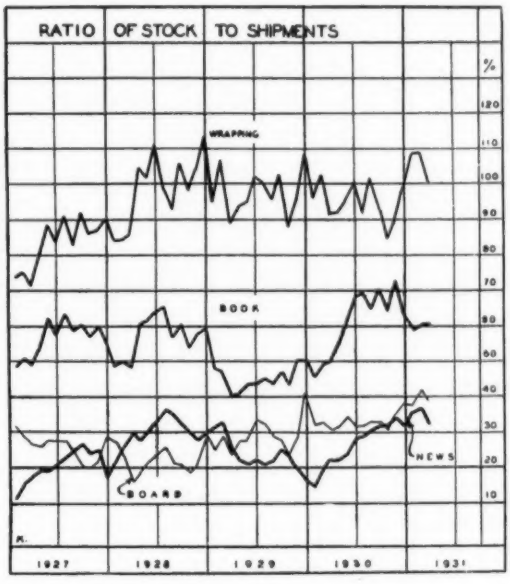
increased their expenditures for radio advertising by 63 per cent. Their expenditures for magazine advertising increased 6.3 per cent. The industries on which the wrapping and board groups depend to consume their products showed a declining trend since late in 1929 but the downward movement has been moderate and regular. As a consequence of this stability, it has been easier to adjust the operations in the board and wrapping divisions to the decreasing demand than was the case in the so-called cultural grades which experienced sudden, sharp decreases in demand.

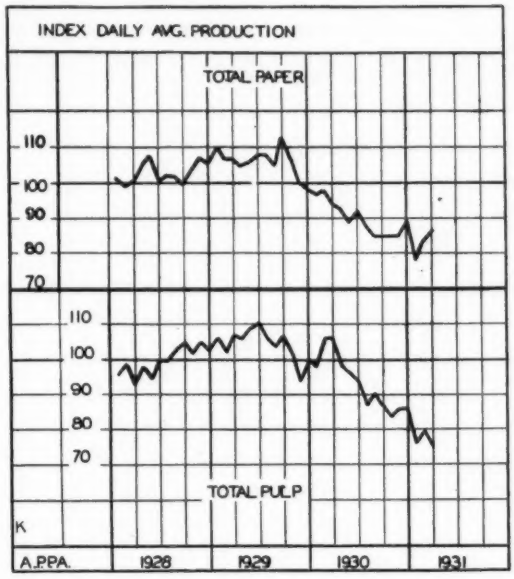
### Stability of Inventories

Inventories are always a factor in any period of slackness and indexes of stability of stocks pointed out some further interesting facts. Early in the depression, it was stated by many economic authorities that we could not experience a serious slump because inventories were low and would soon be used up thereby necessitating an early increase in production to meet the demand. That argument, of course, was based on a false premise and naturally the conclusion was wrong.

Inventories of the various grades of paper in 1929 were low in relation to the demand but naturally they were affected in 1930 by the decreased demand. Wrapping paper and board inventories showed the greatest degree of stability while news print and book showed the least. Variations in the size of the tonnage of stocks on hand are not as important as the variations of that tonnage in relation to the variations in demand. A given tonnage of inventory may be small or normal in relation to normal production but when the demand falls off, this same tonnage will be higher in relation to the demand.

Indexes showing the trend of inventories at the end of the month expressed as a per cent of the month's shipments showed that while inventories were in some instances lower than normal, nevertheless, in most instances in 1930, stocks




tended to get above the level of 1928. Wrapping paper stocks in 1930 were the only stocks which showed no tendency to get above the 1929 level. (This is illustrated by the chart on inventories.)

Newsprint and board stocks represent a smaller ratio to shipments than do the other grades, seldom being over 30 per cent of a month's shipments, while writing including cover and specialties, because of the necessity of stocking a larger variety of papers, have the highest ratio of stocks to shipments. Coming in between these high and low groups are both stocks which ordinarily run below 60 per cent of a month's shipments and wrapping which runs between 90 per cent and 100 per cent of monthly shipments.

In view of the large surplus capacity existing in all sections of the industry, it is necessary to watch inventories closely because they indicate the extent to which production is out of line with the demand and if allowed to accumulate, they threaten the stability of the none too firm markets. Price weaknesses resulting mean more than just a loss on the paper sold at concession; they mean in addition a threat to the value of all the paper to be produced in the future. A break in the price means lessened future earnings and an even smaller return on the capital invested.

This discussion is dealing with the operations of the paper industry and while we have pointed out that as compared to industry in general, we are favored with a greater degree of stability in operations, employment and wages, the same cannot be said for prices or earnings.

### Hand-to-Mouth Buying and Budgets

During the past several years, there has been extensive discussion on the effects of hand-to-mouth buying and its effect on the size of manufacturers' stocks. The thought behind hand-to-mouth buying is the reduction of inventories and we are frequently confronted by the statement that inventories have not been lessened so much as their burden has been shifted. This supposed shifting is generally be-

*(Continued on page 94)*

## THE POWER OF NIAGARA AT WORK

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**And to this natural force is added the finest human effort, with the result that excellent service, sound organization and superior manufacturing processes have made EBG symbolic of the best in Liquid Chlorine.**

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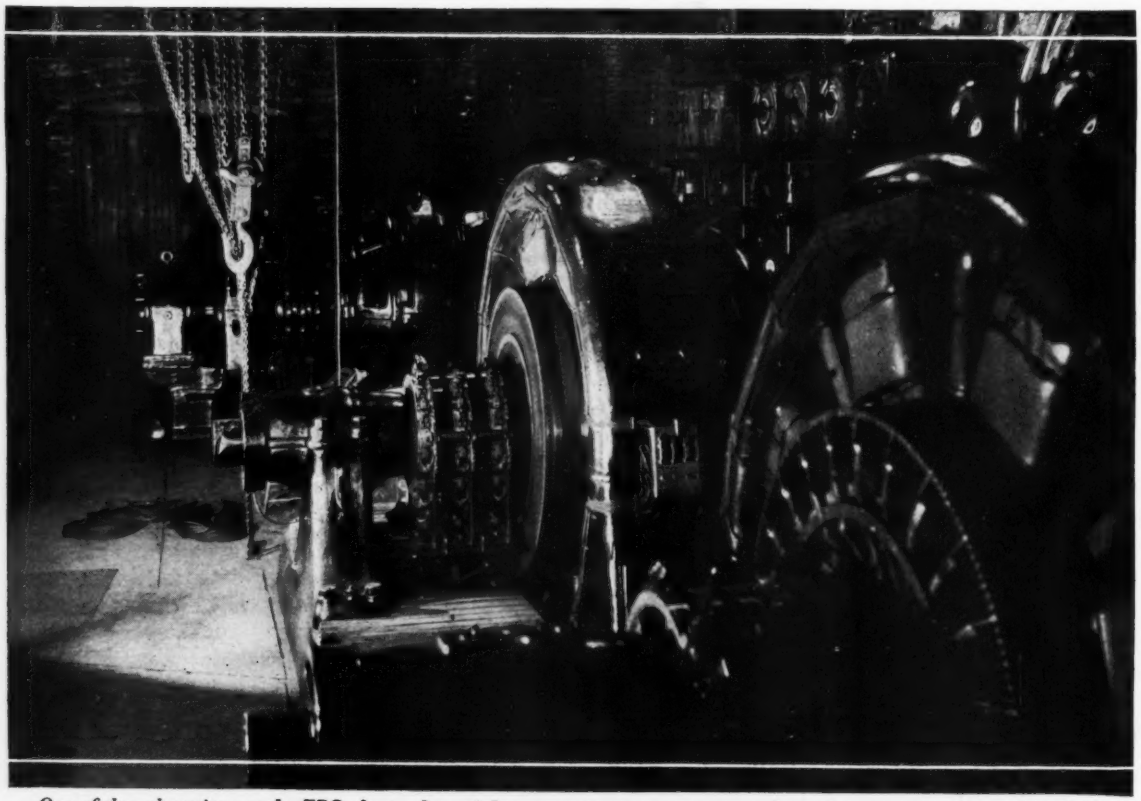

*One of the sub-stations at the EBG plant, where eight great rotary converters step down the enormous power of the Falls.*

# Liquid Chlorine

Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

# Some Facts on the Domestic Wire Cloth Situation*

By A. M. Ferry[1]

It is an old and well authenticated superstition that the seller and the buyer are natural enemies. On that theory, appearing before you is a dangerous venture rather than a pleasant pilgrimage. However, I don't subscribe to the superstition and in behalf of the members of our Association and myself I thank you and your officials very sincerely indeed for allowing me a brief period in which to give you a few facts which I believe will prove of interest.

Most of you remember that back in the early 20's there was an institution known as the Armstrong Bureau of Related Industries. One of the groups in that organization was the Wire Cloth Manufacturers' Association, and almost from the beginning of the association the paper mills looked on the organization with considerable suspicion, if not actual distrust. One of my misfortunes or assets, according to the viewpoint, is the fact that it has always been rather easy for me to see the other fellow's viewpoint, and to be perfectly honest with you I don't altogether blame the purchasers of wires for their distrustful attitude.

At that time the manufacturers of wires exchanged reports of sales, shipments, stocks on hand, and all the other detail that is highly desirable to enable a company to do business intelligently. They did not at that time and never have agreed upon prices or fixed prices. Statistics were exchanged, however, on such a basis that every man in the association knew the full detail of every transaction almost as soon as it took place. Names of sellers and buyers were revealed so that, as one purchasing agent expressed it, his wire cloth transactions enjoyed as much privacy as the proverbial gold-fish. These things were considered entirely legitimate, but they were undoubtedly irritating to the purchasing agents. For the last seven years neither buyers' nor sellers' names have appeared on the reports that go out from our office.

As you have undoubtedly guessed, it is my job and my desire to be perfectly frank about the past, the present, and the future. I hold no brief for the purchasing agent and the record will show that for many years our association has been absolutely frank in its relations with the paper mill buyers. One cannot in justice blame the purchasing agent for putting forth every possible effort to make his purchases at the lowest possible price. One cannot blame the seller for getting as profitable a price as he is entitled to. One can, however, take very definite exception to extortionate operations on the part of the seller by price agreements which are designed to make the buyer pay higher than a legitimate price, and can be equally critical of the purchasing agent who misrepresents in order to get a lower price.

I want to say to you here and now that while the Wire Cloth Manufacturers' Association have every intention of being absolutely law abiding, there is another reason which is at least as important to keep them from price agreements. They do not believe such operations are sound and each of the companies concerned insists on reserving the right to base his operations on the best judgment of its executives.

On several occasions our cooperative activities have been gone over by the Department of Justice as a result of complaints or suggestions by paper mill buyers. Some of your member companies have at times seemed to make definite efforts to break up the Wire Cloth Manufacturers' Association. We have never at any stage of the game concealed the slightest detail of our operation. If the Department of Justice came into our office this morning at ten o'clock, while I am not present, our files and our records would be thrown open to them one hundred per cent, and this has always been true. That department, the eagle eye of the Government, has never given us a clean bill of health except by inference, but they have never criticized a single phase of our operations.

### To Invoke Power of Cooperation

You men are gathered here today to invoke the power of cooperation to make your industry better by working together. The wire cloth manufacturers, small in numbers and small in volume, cooperate for exactly the same purpose. They have been working together for nearly 25 years I am told, but my personal experience with them goes back only about 13 or 14 years.

During that period they have been up against some heart rending problems. During the war, strange as it may seem, paper mills came to them and literally begged them for wires. Some of the plants increased their equipment and capacity in a physical way while others worked day and night to meet the demand. In spite of some conversation to the contrary, the record shows conclusively that the industry did not in any sense profiteer. Then came the slump, and in common with other industries which had expanded, the wire cloth people had some difficulty in picking up the slack. About that time also the foreign manufacturers came into this country with costs so ridiculously low that from a price standpoint there was no com-

* Presented at the annual meeting of the American Pulp and Paper Mill Superintendents Association, Dayton, Ohio, June 4-6, 1931.

[1] Secretary, Wire Cloth Manufacturers Association, Washington, D. C.

petition. To the everlasting credit of some of your members, the American industry retained enough business to keep its head above water, but I assure you that the buyers who continued to patronize us did so in spite of a great discrepancy in price and because they realized that, entirely aside from any sentiment of gratitude for the way the wire cloth industry had performed during the war, it was to the paper mills' own selfish interest to keep this American industry alive against a future emergency. I have little to say about the considerable number of paper mills who made great promises of loyalty in the future if they could only be taken care of during the emergency, and who succumbed to the price argument the minute they could secure foreign wires. Nobody should expect much from promises of that sort.

During these years our industry has been completely unionized, and our manufacturer members have been accused at times of complete capitulation to the union in the matter of wages. The record will show that perhaps the accusation is justified in that the manufacturers wanted their men to get wages in proportion to the importance of their work.

The members of the wire weavers craft are practically all native Americans and most of them have been in the work for many years. Whether the practice is sound or not, the union demands a long and arduous apprenticeship before a man can become a journeyman. It is undeniably a skilled craft and one that justifies good wages. Regardless of what those wages should be, one thing is certain—we could not ask men of that degree of skill to work on the wage scale which obtains in foreign countries. Up to comparatively recently weavers in some of the foreign countries were working for wages as low as ten or twelve dollars a week and the discipline was so severe that if a man had a crash, whether it was his fault or not, it was likely to wipe out his wages for the week.

No man can seriously contend that Americans should be asked to work on that basis, but the cost of fourdrinier wires is quite largely in labor and the result has been that foreign wires have been sold in this country at such ridiculously low prices that the American manufacturer simply could not compete on a price basis. For that reason we have engaged in a tariff battle which has lasted for approximately fifteen years and it is only within the last year that we have secured tariff protection that is reasonably adequate.

After appearing in person and subjecting ourselves to cross-examination before the House Ways and Means Committee and Senate Finance Committee, in the meantime submitting all the figures as to costs which any one could imagine, we were given a 55 per cent tariff. In a political wrangle on the floor of the Senate, which followed party lines to a large extent, we were cut to 40 per cent, and later in the committee conference between the House and the Senate, we were put back to 50 per cent. Our people felt they should rest on that figure for the time being and made no complaint, although it was perfectly obvious that the 50 per cent tariff did not come close to putting us on a parity with the foreign manufacturers. However, one of the opposition, not satisfied with the result, appealed to the Tariff Commission, and after an exhaustive investigation in our plants, the Tariff Commission recently raised that 50 per cent to 75 per cent.

I submit, gentlemen, that it is very significant indeed that the cost figures secured by the Tariff Commission experts working in our plants were practically identical with the cost figures which we voluntarily furnished to the House Ways and Means Committee and the Senate Finance Committee.

We are grateful indeed to the American Paper and Pulp Association, and to the vast majority of the paper industry, for the fact that no organized opposition was made to our plea for protection. Some few paper companies appeared and offered cases based entirely on the contentions of the importers, but the Paper and Pulp Association itself and the newspapers of the country were very kind to us. Naturally we feel extremely grateful even though we realize that such a position on the part of the paper mills was consistent since they themselves were appealing for protection against foreign aggression. The plea of the importers and the few paper mills which opposed us was that this industry would immediately become a monopoly and would raise prices beyond all reason if it were allowed protection.

As secretary of this association I have no direct interest whatever in prices. Reports are rendered to the association office each month which show the prices at which the principal meshes have moved during the previous month. Names of buyers and sellers do not appear in the report that goes out to the members. Occasionally a purchasing agent will base his claim of price fixing and collusion among sellers on the fact that the prices quoted by the various companies are uniform. There is no question that this is true at times. Neither is there any question that at other times there is a decided spread between the prices of the various members of our association.

I call to your attention the fact that if there are four grocery stores on four corners of a busy intersection, it is quite likely that those four stores will quote about the same price on a bushel of potatoes at any given time. The same holds good in every other line of merchandising except for the occasions when one or the other of these competitors wishes to make a drive on a certain commodity in order to attract customers.

The courts have indicated in various decisions that mere uniformity of price does not necessarily mean price fixing. Our people have all paid the same labor rates under a contract with a national union. They all pay precisely the same prices for brass and bronze, their principal raw materials. Each of them allows freight. The machines on which the wires are made are very similar indeed. They all know around the 15th of each month what prices were obtained for wires of certain meshes the month before, just as you people in the paper industry know what prices are current.

Is there any reason to suspect collusion because prices of wires quoted by the various manufacturers may remain practically uniform for considerable periods? Is there any particular reason why one manufacturer should tacitly admit that his quality is lower by cutting his price on 60 mesh one or two cents per foot when his competitors are getting higher prices?

Our people are extremely desirous of having the superintendents and the other executives of the paper mills know exactly what they are doing. In such ways as have been available they have tried to be of service to the users of wires. Considerable money has been spent along this line although there has not been a great deal of ballyhoo or noise made about it. Every single one of the wire manufacturers is experimenting constantly trying to improve the quality of his product. The association as a whole employed an internationally known laboratory to figure out the best means of cleaning wires. We took the report of your Technical Association and reproduced it and broadcasted it when it became apparent they had authoritative matter on the premature cracking of wires. We are even now working with the Bureau of Standards in the hope that a standard for wires can be produced.

All in all, gentlemen, we believe there is no group of sellers or manufacturers in the United States who are any more anxious to work closely with the people they serve. They have no secrets about the way they do business and are only too glad to meet the questions of your superintendents in the frankest possible way. They feel certain that in the long run the tariff protection they now have and the existence of this association will be found of tremendous benefit to the paper making industry. We want your criticisms and your suggestions for the betterment of our industry and for the improvement of the service which we sincerely want to render you. If you have any problems which you think we might be able to help you solve, give us the opportunity to try. The Wire Cloth Manufacturers' Association is at your service and eager to serve.

# Technical Control In The Sulphite Mill*

By Vance P. Edwardes[1]

The whole subject of technical control in the sulphite mill has been under discussion for a number of years. There is no question in the world but that properly applied control is of inestimable value to the operator, but technical knowledge alone is of no value unless it can be applied in a rational manner to operating problems. Frankly, I believe that a man's technical knowledge is worth say 20 per cent while his ability to put his stuff across to the operating staff accounts for the other 80 per cent.

What I have to say will contain nothing new or startling. The principals which govern sulphite operation have been known for a number of years. The biggest difficulty is to get them across to the operating men in a logical and convincing manner.

### The Alibi of the Sulphite Man

The wood pile has often been called the alibi of the sulphite men, but it is not an alibi. The fact is that of all the major industries, pulp and paper knows less about the effect of changes in quality of their biggest source of raw material, and I do not believe that anyone will deny that the quality of pulp varies with changes in wood quality. The difficulty lies in measuring such differences. When one considers that there is wide variation in both physical and chemical characteristics even in one species, it is inevitable that the product will also vary in physical and chemical qualities. The value which can be derived from an intelligent study of wood quality is enormous and has been proven time and again by the foremost companies in this country, to say nothing of the pulp producers in Europe. To enumerate very briefly various factors which are of importance, we have specific gravity, cellulose content, percentage of summer wood, pitch, decay, and moisture. There is no logical reason why wood should not be purchased on the basis of specifications governing the above factors, except the apparent lack of coordination within the industry itself.

The sulphite mill proper has also been treated as a pulp mill rather than as a chemical plant, and this I feel is a serious error and has led to very inefficient operation. The mill can be divided, for purposes of operation, into three parts, the acid plant, the recovery system and the digesters. We hear almost nothing about acid plant efficiency, yet the effect of gas concentration, temperature, cooling and absorption all bear directly on the efficient operation of the plant. Losses in acid plant operation can easily amount to fifty pounds of sulphur per ton of pulp.

### Recovery

When it is considered that about one hundred ninety pounds of sulphur are required theoretically to produce one ton of pulp, and further that approximately three times as much sulphur as needed is charged into the digester, it can be readily seen that the efficient operation of the recovery system is of great importance in securing economy in sulphur consumption. The biggest causes of poor recovery go back beyond the recovery system itself, although the latter are far too often but poor operating units. For instance, a recovery system may be able to satisfactorily take care of the gas relief from one digester, but if the digesters' spacing is not properly controlled and two or more digesters are gassing at the same time, the recovery system will become overloaded and a loss in sulphur results. It is impossible, of course, to secure a complete absorption of all the sulphur dioxide from the relief, gases, due to the fact that other gases relieved serve to decrease the sulphur dioxide concentration below that which corresponds to the free content of the raw acid. However, a great deal can be done in tightening up the whole recovery and storage systems and eliminating in so far as possible the infiltration of air.

Probably the largest source of sulphur dioxide loss lies in the digester blow liquors. It has been, and still is, normal practice to consider the acid concentration in a digester that which is indicated by the hot test. You all know that as the liquor is drawn from the test cock, gas escapes and the acid concentration as determined represents very much less than the true concentration of the liquor in the digester. I am not advising to blow digesters by either the hot or cold iodine test, but I do say that much more efficient gas recovery can be secured through intelligent use of the cold test. It is, of course, uneconomical to attempt to recover all of the gas in the digesters; too much time would be wasted. I am willing to wager though, that lack of proper attention to this very important point in economical operation, is responsible in many cases for high sulphur consumption.

I do not think I am far wrong when I say that the average sulphur consumption of the industry is probably in the neighborhood of two hundred seventy pounds per ton when cooking spruce. Most of us are inclined to pat ourselves on the back when we bring the sulphur consumption below two hundred fifty. I still think we have a long way to go, and believe that consumption figures of around two hundred pounds are obtainable. Many foreign mills report sulphur consumption even lower. One mill in particular reporting one hundred sixty pounds per ton in the winter to two hundred twenty in the summer. Of course, I realize that yield plays an important part in the sulphur consumption figures secured, and this brings me to another very pertinent subject on which but little real information is available.

### Pulp Yields

How many sulphite mills in this country really know their pulp yields? I doubt if there are more than a dozen. The enormous advantages which can be secured through increases in yield have for the most part been overlooked and more or less arbitrary standards adopted. The only logical way in which yields can be properly expressed is on a percentage basis, that is, pounds of pulp produced per unit of bone dry wood. This whole question of yield is of most importance to the industry for unless yields are available, the effect of many variables entering into the manufacture of pulp can not be measured.

You have all heard of the various types of cooking curves which were developed by Miller and Swanson at the Forest Products Laboratory, and of their effect on pulp quality and yield. I do not know how widely these curves are in use but I do want to say that the sulphite superintendents are overlooking an extremely important bet if they are not applying the results of that study.

While it appears impossible to secure the full benefits of a change in the type of temperature curve on mill scale operation, due to reasons which will be mentioned later, it has been shown that a change in the type of curve will account for approximately a 7 per cent increase in yield. The fact that it is difficult to secure the full advantages of properly controlled temperature rise lies in the inability to properly control the distribution of temperatures within the digester. For that reason, I feel that



* Presented at the annual meeting of the American Pulp and Paper Mills Superintendents Association, Dayton, Ohio, June 4-6, 1931.

[1] Member TAPPI, International Paper Co., New York, N. Y.

the industry will have to come to some form of circulating system. Enormous temperature differences exist within the digester during a cook of normal duration and while the use of hot acid undoubtedly greatly reduces these differences, I still feel that forced circulation is the final answer.

Even when using the same temperature curve, the effect of total cooking time on yield is generally unknown. Isolated experiments have been made in which the percentage of yield increase has been determined. As an example, by increasing the cooking time from eight and a half to ten hours on the same wood it is possible to increase the actual yield by slightly over 10 per cent. Increases in yield will, of course, decrease as longer cooking times are used, but the industry as a whole is suffering enormous losses by over emphasis of the idea of digester efficiency.

This whole subject of technical control is of such vast importance to the industry that I do not believe we are in any danger of overdoing it. The point I want to emphasize again is that the information secured through technical control must be intelligently applied and back of it all the superintendent must have unlimited faith, patience and common sense.

# Uniform Conditions For Paper Testing*

By M. D. Bardeen[1]

During the past five or ten years the increasing pressure of competition in the paper industry has progressively emphasized the importance of the physical characteristics of paper. To the Mullen test, which in the fine grades had been for many years practically the only approximately reproducible test applied to the finished sheet to determine its strength, have been added folding endurance, tearing strength, tensile strength and several more tests devised to measure some factor of the sheet necessary or deemed necessary to its successful application to the use for which it is made.

The increasing familiarity of the buyer with the physical tests and characteristics of paper and the growing use of definite specifications by the purchaser of paper has brought the mill man face to face with the fact if he is to get anywhere at all in the manufacture of paper in this day and age he must know exactly what he is doing all the time with respect to such of these tests as apply to the sheet being made.

Some years ago, in common with a good many other mills, we partitioned off a corner of the beater room close to the machine room, installed a so-called chemist and several testing instruments, including tearing and folding testers, and proceded to test each reel as it came from the paper machine. In a relatively short time we discovered that not only did our tests, particularly the folding endurance, vary tremendously from day to day in the same grade of paper, but that we were unable to duplicate tomorrow a test made today on the same sheet. A sheet that showed a poor fold and tear today might, after lying in the laboratory over night, show a very good tear and fold tomorrow and vice versa—particularly vice versa. The difference between tests made when the windows were open and when they were shut and the steam turned on was astonishing.

This was very apparently due to varying weather conditions so we tried to maintain a reasonable degree of uniformity by means of steam jets to raise the relative humidity, and by juggling the windows and steam lines to control the temperature. This attempt met with very indifferent success. So indifferent in fact that we realized that it was essential to make some real effort to eliminate these two intensely significant factors in the testing of paper—temperature and relative humidity.

To this end we constructed a very carefully insulated room about 12 feet x 10 feet x 7 feet and installed in it automatically electrically controlled humidifying and dehumidifying, heating and cooling equipment, similar in general outlay to several such rooms in use in various mills and to one recently described in the "paper industry," at a cash expenditure of approximately $1,000,000. In this room we are able to maintain a temperature within a total range of about 3 deg. F. day and night, winter and summer, and a relative humidity within a range of about 3 per cent as nearly as we can estimate, since the variation is less than can be accurately read on a wet and dry bulb thermometer. By conditioning and testing all samples in this room we can get results that can be checked on the same sheet the next day or the next month within a reasonable limit of variation and can satisfactorily compare a run made today with one made last week or last year. It does not, of course, eliminate the variable factors introduced by instruments out of calibration and other variables that bother in reproducing test results but it does keep the atmospheric conditions within reasonable limits.

This question of temperature and relative humidity is more significant than is generally realized. A sample folded at 65 per cent relative humidity and 70 deg F. will show a test averaging approximately double that shown by the same sheet conditioned and tested at 50 per cent and if the temperature be raised to 80 degrees and the relative humidity to 70 or 75 per cent the test may be tripled or even more.

The fold test is the most susceptible to small changes in temperature and relative humidity but tear and Mullen and other tests are affected to an appreciable degree. The fact that the folding endurance test is being generally recognized as one of the most significant physical tests for high grade papers is demanding uniform testing conditions.

The lack of general information concerning the variation in results of physical tests under varying conditions of temperature and relative humidity leads to considerable confusion among salesmen and purchasers through the quotation of extremely high tests, particularly folding tests, by salesmen for their sheets without specifying the temperature and relative humidity at which these tests were made. If your sheet has been tested at say 50 per cent and showed a fold of 350 double folds, it is perfectly possible for a salesman with a sheet of approximately the same or slightly lower actual grade to shave your price and at the same time claim a folding endurance of 500, as long as he is not forced to specify under what conditions the tests were made—which with a few exceptions he is not at the present time.

From the point of view of mill control it is impossible to know what you are doing from day to day without adequate temperature and humidity control, and from the point of view of sales promotion and specifications it is essential that both the buyer and manufacturer be protected from misinformation having its foundation in varying testing conditions. The fact that the Federal Government maintains two institutions testing paper one of which tests at 50 per cent and the other at 65 per cent relative humidity gives some indication of the chaos that exists in paper testing conditions in this country today.

The makers and users of paper should, for their own benefit and protection, make a very determined effort to establish a definite and uniform set of conditions under which all testing for sales promotion and specifications must be done, and insist that all tests be reported as made on samples conditioned and tested under these conditions.

* Presented at the annual meeting of the American Pulp and Paper Mill Superintendents Association, Dayton, Ohio, June 4-6, 1931.

[1] Member TAPPI, technical director, Lee Paper Co., Vicksburg, Mich.

# The Use and Abuse of Paper Makers' Felts*

By William U. Hanke[1]

Paper makers being thoroughly conversant with the use of felts, we feel that it will not be necessary to go into any details along these lines, but to confine ourselves to the subject we are all most interested in, that of the abuse of paper makers' felts.

In order to get a clearer understanding, and to assist us to solve the various problems if possible, we should first have some conception of the product we are working with, and in order to do so we should have some knowledge of the important phases of the manufacture of felts. By doing so we can more readily understand the effects the various abuses will have on the felts.

### Wool

The failure or success of a felt, so far as the felt manufacturer is concerned, can be determined to a more or less degree of certainty on the very starting point in the manufacture of felts, that of selecting the proper grades of wool in order to make a satisfactory felt suitable for the exacting requirements of the paper maker.

The ever-increasing demands of the paper maker for length of service, finish, porosity, and production, requires that the selection of the proper wools used in the manufacture of the various grades of felts be given the most careful and expert consideration, and can only be determined by years of actual experience.

It is not ncessary for use to enumerate all of the various grades of wools necessary, or their different qualifications, but to study the wool fiber itself in order for us to get a proper understanding of its construction, and the effects on the wool fiber under actual working conditions as they exist in the paper mill.

Wool fiber, owing to its delicate construction, can be very easily destroyed by the excessive use of strong alkali, or greatly injured by heat. If we were to examine a wool fiber under a strong microscope we would find it composed of a series of scales, the number of scales varying from 1,000 to 2,500 per inch. The chemical composition is 50 percent carbon with oxygen, nitrogen, hydrogen, and sulphur making up the balance.

Strong alkalies, such as caustic soda, or caustic potash, dissolve completely the wool fiber in a 10 per cent solution when boiled for 10 minutes. Soda ash has also a detrimental effect by giving a harshness to the fiber. Vegetable fibers on the other hand are extraordinarily resistant to the action of alkalies, but are affected by acids.

### Manufacturing Processes

During the various processes in the manufacture of felts, the utmost care is exercised to obtain the maximum results in perfection of quality, and consists of wool sorting, scouring, carding, spinning, weaving, and finishing, in order to produce in the finished felt the qualities desired and demanded by the paper maker.

### The Abuse of Felts in Paper Making

These may be classified under the following headings:

1st. In selecting the proper felt for the grade of paper to be manufactured.

2nd. Mechanical abuses of the felt.

3rd. Chemical abuses of the felt.

### Selection of the Proper Grade of Felt

The paper maker has a large and varied line of all grades of felts to select from, and in his selection should analyze carefully the various grades submitted by the felt maker, and then submit to the felt maker his selection with the necessary details just what grade of paper is to be made and what qualifications are expected from the felt. By this very necessary cooperation better results can be obtained and oft times undeserved criticisms and complants against the felt manufacturer will be eliminated.

It occurs at times, that owing to changes in business conditions, the paper maker is obliged to change his product, using a different grade of stock, which has a direct bearing on the felt. While on the previous product produced, the wet felt was giving entirely satisfactory service, now owing to the change in stock the felt will fill up, requiring more frequent washing, marking, shorter life and complaint comes to the felt maker that his felts are not up to their usual standard of manufacture.

In the selection of a wet felt, the paper maker has several choices, but must take this into consideration, that the necessary qualities in a felt are limited to a certain degree. The paper maker can use a light open felt, which will give a limited amount of service, but will drain well and is not as apt to mark the sheet. Or a heavier felt can be used which will give longer life and service, but will mark more readily. A medium weight felt, in some cases, may be best to use under the circumstances.

Conditions differ so much in the various paper mills that it becomes necessary for the felt maker to construct a felt which will meet these individual requirements.

### Mechanical Abuses of Paper Makers' Felts

The proper function of the felt is the removal of water and the conveying of the stock from the wires or cylinders to the dryers, but some paper makers use it as a drive belt, especially on board machines, thereby shortening the life and service of the felt. In cases of this kind the machine builders could be of great service in perfecting a drive to run the primary presses and cylinders on board machines.

In putting on a new felt, we suggest the following details be given careful consideration and we feel sure better results will be obtained from the felt.

1st. See that all bearings and parts of the machine are wiped free from oil and grease.

2nd. See that all wrinkles are smoothed out before starting.

3rd. Run the felt around at least once before putting on shower.

4th. See that all stretchers are slacked back and working free so as to give the felt a chance to come down to size and adjust itself to machine.

5th. Start the felt with power running at about ½ speed or less.

6th. Before starting machine see that all journals are properly oiled.

7th. See that there are no tacks or nail heads sticking up on worm rolls, as these naturally pick and cause thin streaks.

8th. Edge trouble is caused often on board machines by using tacks in putting on deckel web, and would recommend brass staples.

On Fourdrinier machines edge trouble is caused by the use of strap steering device when other than leather belt is used, and the leather becomes hard and cracked.

9th. Worm rolls with uneven worming and double worming on ends.

10th. Whipper rolls running too fast with the felt set up too hard against it.

11th. All press roll couches to be raised off the felt when the machine is down for any length of time, especially in hot weather to keep the felt from rotting.

See that proper crown is in the rolls, otherwise there would be a tendency to pinch the edges of the felt.

12th. Whipper and slices should be carefully examined to see that there are no rough spots.

13th. Do not use water on showers containing sand, etc.

14th. Keep showers clean.

* Presented at the annual meeting of the American Pulp and Paper Mill Superintendents Association, Dayton, Ohio, June 4-6, 1931.

[1] Orr Felt and Blanket Co., Piqua, Ohio.

15th. See that stock is properly washed.

16th. See that felt is clean from any particles of stock when shut down as these dry and have a cutting effect when the felt is again started. Dry crumbs of stock are the cause of holes and the felt should be thoroughly clear of these hard substances.

17th. The felts should run straight with the guide-line in order to get the full benefit of the construction of the felt.

There are so many different causes for abuse of the felt while on the paper machine that each case requires different attention by the paper maker, and with the cooperation of the felt maker, more satisfactory conditions and service would be obtained from the felt.

### Friction

In summing up the mechanical abuses of paper making felts we feel that friction is the main cause for the greatest deterioration in the woolen felt, causing short life and unsatisfactory service. The easier the felt is run, and the less friction put on it while on the machine, will add greatly to the life of the felt, and will cause far less trouble to the paper maker.

### Starting Felts on Cylinder Machine

After felt has been put on machine and straightened out, advise that one felt be changed at a time. Take for example bottom felt. See that the lines are straight across the face of felt, then start the shower on top felt only, allowing the top felt to wet the bottom felt by allowing the bottom felt to make at least five complete revolutions.

Then turn the shower on bottom felt and allow to shrink up tight on the rolls. If, after the felt has run 15 to 20 minutes with showers on, the felt has not taken up all slack, tighten up on stretcher bar until felt is tight. This is important to get the width to set. Also it may save a foot or more of felt length which sometimes causes trouble. After felt is thoroughly wet, which one can judge by hand on felt at the worm roll between first and second press, then start the sheet over. This requires about 30 minutes time, but will add tonnage to the felt's life.

To start a top felt the operation is the same as the starting of bottom felt; only the top felt must be wet from the bottom felt, remembering to use only the shower on bottom felt in starting top felt. The time for shrinking is about the same.

To shrink a press felt on cylinder machine. It is always best to use a shower pipe immediately ahead of the press roll thereby allowing the press roll to squeeze the water through the felt evenly.

A hose should never be used to wet any felt, neither should any felt be roped up and washed or wet or shrunk on machine. This method of washing or shrinking of felts is obsolete in this day of felt construction because of twist and weaves being made heavier to cope with increased speed of machines and friction contact.

### Felt Slippage

This is another cause for felt failure and does not allow the felt to function properly. When slippage is taking place a long shaggy nap appears on the face of the felt, which is pulled out from the yarn in felt, especially filling ways, taking out a certain amount of strength from the yarn, thereby weakening the felt, causing short life.

To overcome slippage, drives and rolls must be synchronized, and drive belts should be heavy enough to carry the load properly.

Too many contact points, short hitches, odd sized rolls in hitches, uneven or jumpy couch rolls, iron pitted rolls, corrugated rubber rolls, are other causes for short life and unsatisfactory service of the felt.

Any mechanical felt cleaner that creates friction is a detriment to the life of the felt. While mechanical cleaners may keep the felt clean, they add nothing to the life of the felt.

Where machines, especially board machines, are run at high speed, and weighting heavy on their first presses for water removal, the life of the felt is sacrificed.

### Fourdrinier Felts

For fine papers and where finish is important, more time should be taken to start a first felt, by first installing a tank with sufficient capacity to wet the felt with a solution of soapy water mixed, namely: 5 quarts neutral soap to 50 gallons of water, heated to 100 deg. F. This should be placed up high over or to one side of the machine and connected by rubber hose to a shower pipe immediately in front of the first press. The felt should be allowed to make several revolutions of the machine, then this shower disconnected and your clean water shower attached and the soapy water washed out. Your felt will have by this time been thoroughly wet and cleansed, and shrunk to fit your machine. You will have a felt that will not blow, if properly adapted to your requirements.

### Second, Third, and Fourth Press Felts

Caution. Never rope a press felt to wash or wet. Place a temporary shower pipe in front of your press roll and allow this shower to wet your press felts. It requires at least fifteen to thirty minutes to wet thoroughly a press felt by this method. Any other method will require more time and cause unsatisfactory results from your press felts.

For heavier weight papers advise the same method in starting felts as above described, remembering that a thoroughly wet felt even shrunk sheds the water more readily and resists friction longer. In these days of speed or increased tonnage, every opportunity should be taken to cut costs and felts are one among many accessories that can help cut the cost by giving it a chance to do its work.

### Selvage Edges

Never be hasty in cutting or tearing off the selvage edge of any felt. If the proper width is given the manufacturer and proper time given the felt to shrink on machine, the selvage edges will be right.

To arrive at this, measure press roll width as well as cylinder widths and give width at narrowest point to felt manufacturer. The manufacturer then will allow two inches on both sides of the narrowest point for shrinkage.

Cooperate with the felt manufacturer to get this right by advising him the widths. Don't cut the edges on. Eliminate all extra friction contact points and short hitches on your machine, as these affect the life of the felt. Don't use strong alkali solutions to wash felts. Give the felts a chance to do good work for you by being careful in starting and in running them.

### Chemical Abuses of Paper Making Felts, Including Washing of Felts

In our previous remarks we tried to make clear the delicate construction of the wool fiber, and the careful consideration given to the selecting of the proper grades of wool for the manufacture of felts; but in the process the felt manufacturer can be ever so careful and skillful, only to have it undone in a very short time by the paper maker in the use of strong alkalies, acids, and improper washing of felts.

The abuses of paper making felts through the action of chamical agents, contribute greatly to the deterioration of the felt. The stock used should be free from bisulphites and especially lime, which has a hardening effect on the felt, causing the fiber to become brittle, decreasing the life and service of the felt.

The use of sulphuric acid in the washing and scouring of felts should be given careful consideration, as if used too strong or hot in connection with heat it will have a carbonizing effect on the wool fiber, and deterioration sets in causing the felts to become harsh and brittle.

In the scouring of felts in straw and box board mills, in order to remove lime from felts, sulphuric and muriatic acid should be diluted and not used too hot.

In the washing of felts, especially the heavier press felts, which are washed in a regular felt washer, the temperature of the water should not exceed 120 degrees. When the felt is placed in the

machine, run in enough warm water to thoroughly saturate the felt, then add soap enough to bring up to a good lather. Run 15 minutes; run off this dirty water and then refill with warm water and resoap again and run for 15 minutes longer. Run water off and then run for 15 minutes in clear warm water; afterwards cooling felt in cold water.

The felt manufacturer, in washing felts, runs his felt in cold water when washing is completed in order to cool the felt, whereas in the paper mill some of the paper manufacturers rinse their felts in warm water or at the same temperature that they wash them in. Rinsing in either cold or warm water is a debated question, whereas the paper maker feels rinsing in cold water shrinks the felt, while in our experience in felt making we find that in using cold water for rinsing, the felt will widen out. Felts after they have been used may act differently so far as shrinking is concerned so that the paper maker must wash them in the manner whereby he gets the best results.

The dirt and other foreign matter cannot be successfully removed by simply using cold water and soap, and in cases where this is done the felt will become sticky and gummy, causing the felt to become hard with very little draining qualities.

The use of either muriatic or sulphuric acid in the washing of felts on the machines in board and straw mills will clean them out temporarily, but once acid has been used in washing the felt it will fill up faster, and makes the felt hard closing it up and marking the sheet.

Either acids have a fulling or felting effect on the wool fiber, closing up the interlacings between the warp and filling threads in the felt, making water removal more difficult, and felt must be whipped harder causing short life.

To overcome this to a certain extent, providing felt in first place is of the proper construction to do the work that is expected of it properly, speed of machine not excessive, and stock is in proper condition, it is best to have warm water in showers, if not possible in the vats, as this will have a tendency to keep the felt more open and soft than any chemical or mechanical appliance will do.

The felt maker is anxious and every-ready to cooperate with the paper maker in order to maintain a relationship which will be mutually beneficial, but in return must have also the fullest cooperation from the paper maker.

# Chilled Iron Calender Rolls*

By Joseph Stuart[1]

We are all of us more or less given to considering that in which we are directly interested in producing, as of major importance. Therefore probably I am not competent to judge of the importance of the calender rolls as compared with other parts of the paper making equipment. I do not know of course that their importance varies greatly with the class of paper you are engaged in producing. On some grades, they are of great importance while on other grades, they are of no importance whatever, not being used. I also know that quite frequently when there is trouble in producing a uniform compact roll of paper at the reel; one might think the calenders were the only part of the paper machine and that nothing else could have any bearing on the trouble. This is probably due to the fact that they are the last part of the machine through which the paper passes before being wound on the reel; and if not of the best quality and the rolls are not properly ground, they no doubt, may be responsible to a greater or less extent.

We are told that formerly the calender rolls were made of ordinary gray cast iron, turned in a lathe and ground to a bearing by being run together in the stack with oil and emery; but in these days of heavy machines and high speeds, rolls of this material would not answer the purpose. All rolls in machine calenders and alternate rolls in supercalenders are now made of chilled iron, and because of its hard, impenetrable, glass like surface, which is capable of taking a smooth finish; no other material so far discovered seems to answer the purpose as well.

You will therefore probably be interested in a short explanation of just what chilled iron is and some of the methods and trials connected with the manufacture of chilled rolls, as well as in the continued efforts of the roll makers to improve their product and to give you calenders which will meet the ever increasing severity of the service.

Calender rolls are frequently referred to as steel rolls in distinction from brass, rubber or stone. They are not steel, however, in any sense of the word as understood by the metallurgists. Neither are they ordinary cast iron, although a chilled iron casting in its simplicity is a casting in which the molten iron is poured into an iron mould instead of into a mould made of sand. Sand is a non conductor of heat and when molten iron is poured into a mould of this material the process of cooling is comparatively slow. This permits the carbon contained in the iron to separate out in the form of free carbon or graphite, mixed with but not chemically combined with the iron. This produces a soft casting, easily workable and is the metal of which the greater part of your paper machines is made; such as the frames, housings, dryers, cores of rubber covered rolls, etc. In fact gray cast iron forms the bulkier parts of most machinery.

When molten iron, however is poured into an iron mould, iron being a good heat conductor, the cooling is rapid. This rapid cooling fixes the carbon in the surface of the casting as combined carbon and products a dense and extremely hard metal. A fracture of this metal will show the iron with a crystaline structure, the cleavage of the crystals being at right angles or normal to the chilling surface.

Chilled castings have a much narrower field of usefulness than gray iron and consequently their nature is less universally understood, but in its own field there is no other metal which answers the purpose as well as chilled cast iron. The most common use of chilled iron is in the chilled car wheel, which has borne almost the entire freight transportation since railroads were first constructed in this country. After this its greatest use is in rolls for rolling metals, for grinding cereals, for oil mills, for rubber mills, for calendering textiles and for what we are most interested in, the calendering of paper.

As I have said, the chilling of cast iron in its simplicity is the pouring of molten metal into an iron mould, but there is much more to the successful manufacture of a chilled roll than just that. In the first place, irons of the proper analysis must be selected for the mixture to be charged into the furnace. Some irons may be poured into iron moulds without any chill whatever being produced, while other iron may chill clear through. Neither of these conditions would answer for calender rolls. A mixture which would produce the proper depth of chill on a seven inch roll would not produce sufficient depth of chill on a 24 inch or 30 inch roll. This is due to the larger volume of metal in the larger roll necessitating the conducting of a greater amount of heat through the iron chiller and consequently slowing up the chilling process. It therefore requires considerable knowledge of the metallurgy of cast iron and experience as to what effect the various elements will have on the chilling qualities.

The depth of the chilled surface on calender rolls varies from ⅜ inch on small rolls about 2 inches on the larger ones. If the

* Presented at the annual meeting of the American Pulp and Paper Mill Superintendents Association, Dayton, Ohio, June 4-6, 1931.
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chill is not deep enough, the rolls will not give length of service and if it is too deep, there is danger of breakage. The chilled portion of the roll, being crystaline has very little strength and therefore must be backed up with sufficient gray iron to insure it not breaking in service. The roll maker therefore is always between his satanic majesty and the deep blue sea as to this matter of depth of chill. However a roll seldom breaks in service as it is subjected to greater pressure in the process of machining than it is ever likely to receive in actual service. Fortunately most rolls that break from over chilling do so in the maker's shop before getting into the hands of the customer.

The chemical analysis of the original mixture is not the only factor controlling the depth of chill. Molten iron has an affinity for certain impurities which it will take up from the fuel used in melting, and thus change its characteristics. The chilling property of iron largely depends upon the amount of silicon it contains and while this amount may be correct in the iron furnace it may be partly burned out to such an extent as to make the melt unfit for chilled rolls. The temperature at which the metal is melted as well as that at which it is poured also have an important bearing on whether the roll will be good or bad. Great care therefore has to be taken with every phase of the melting.

The preparation of the mould is just as important in producing acceptable rolls as the quality of the iron. The part of the mould which produces the body or face of the roll is of iron; those parts producing the necks or journals are of sand, which has to be dried in an oven. Both the sand and iron parts of the mould must be coated with a refractory material to prevent the iron from burning fast. The coating or wash for the chillers as well as its application is very important. Any deviations in this from standard material or manipulation are liable to cause defects in the surface of the roll which would cause its rejection. As the shrinkage of chilling iron in cooling is greater than that of ordinary iron, great care must be taken to allow nothing to prevent this rapid shrinkage. Otherwise cracks in the chilled surface will result.

After a roll is cast, allowed to cool and cleaned, it is ready for machining. I will not touch on this process except to say that the machining of chilled rolls is quite different from that on similar pieces made of ordinary iron, and is performed on machines specially designed for the purpose. It is during the machining operations that the best opportunity is afforded to discover any defects calling for the rejection of the roll. Notwithstanding many years of experience and the great care exercised in the melting and preparation of the moulds; there are so many elements entering in, that the rejections at times are very heavy.

The service that chilled iron rolls have given the paper mills since their introduction about sixty years ago is most remarkable. In fact some of the first chilled rolls made are still in use and for their size are as good as new. Of course with the heavier equipment and vastly increased speeds, the rolls require more frequent regrinding, but the material removed at each grinding is so small that the business to the roll maker of replacing worn out rolls is very meager.

I have just intimated that for most grades of paper and in most operating conditions, the chilled rolls heretofore furnished leave little that could be reasonably expected or desired. There is a service however too which chilled rolls are applied that has caused the roll maker much worry.

### "Puraloy" Chilled Rolls

As is well known, most mills that use water on their machine calender rolls to produce water finish on paper or board, have experienced much trouble from the surface of the water rolls becoming pitted and rough, necessitating frequent removal for regrinding. This trouble has been much more pronounced in some mills than in others; apparently producing the same grades of paper and it is difficult to determine the exact reason why this should be true, but probably it is due to some quality of the water; whether hard or soft, or containing silt or other impurity. Or it may be due to an acid or other ingredient of the stock.

Some of this trouble may also be due to impurities to be found by an analysis of the rolls themselves, which would have no detrimental effect as long as the rolls were run dry, but which in contact with more or less impure water or stock or with water of certain quality set up chemical actions that cause this pitting.

It has always been the aim of Lobdell Car Wheel Company to give its customers for all its lines the best in those lines, not being content to give just as good as others, but meeting every new situation by endeavoring to improve on its past efforts, however good they may have been. Recognizing, therefore the necessity for a calender roll that would give better service, particularly for water finish, they began a series of experiments in an effort to produce such a roll. The result of these experiments is what they have named "Puraloy" chilled rolls, in which certain detrimental impurities have been eliminated and alloys have been incorporated, which makes a somewhat harder surface and one more resistant to the corrosive action that causes pitting.

Some of these rolls have been in use considerably over two years and while in some instances, it has been difficult to see any great difference in performance as compared with ordinary chilled rolls, in other instances, the improvement has been so marked as to encourage the belief that they will go far toward eliminating this source of trouble for the paper mill superintendent.

An instance will suffice to show the advantage the use of these rolls has been to one mill. This mill produces a paper on which the requirements as to finish seem to be extraordinarily difficult to meet and because of the water or the quality of the stock or both, it was necessary to grind some of the rolls on which water was used as often as every two weeks. In fact they had ground one of these rolls to such an extent that it was two inches less in diameter than the original size and about all the chill had been removed. In August, 1928, a 16 inch x 130 inch Puraloy chilled roll was shipped them for this service with the request that they do not favor it in any way. In May, 1930, another roll of the same size was furnished, which they specified must be like the other in every respect. We have been keeping in touch with these rolls, one of which has now been in use considerably over two years, and the last report we had was that they were giving much better service than any other calender rolls.

Of course these rolls, which are showing improved service on water finish, show just as great improvement when used for any other service which is not so severe.

Any one who is at all familiar with foundry work or the making of iron or steel castings, is aware of the difficulties encountered in introducing new elements in the mixture or in changing the usual practice. This is doubly true in the production of chilled iron products, and the successful production of Puraloy chilled rolls was no exception; but was attended with considerable grief, before even a reasonable certainty as to uniform results could be attained. However, the company believes the experimental stage has been safely passed and is now prepared to make Puraloy rolls in any size within the range of its capacity.

Another improvement in the treatment of chilled iron calender rolls, which may prove of great value is that of chromium plating the surface. Chromium as you know is extremely hard, resistant to chemical action and takes a high polish. We are all familiar with its use on the bright parts of automobiles and on plumbing fixtures, the coating on which is very thing, a fraction of a thousandth of an inch, and yet fairly durable. A practical coating for calender rolls must of course be much thicker and until recently, attempts at plating chilled iron with this substance were not very successful but most of the difficulties have been overcome and small and medium sized rolls are now being chromium plated with good results. At present this process is somewhat expensive, its durability and the effect of regrinding are not fully established, but from present indications it may in time prove of great value.

# Factors Influencing Drier Performance*

By F. C. Stamm[1]

It is very gratifying to note the growing interest that has developed on the subject of paper drying. It would seem that drying like most other modern arts, is subject to a very definite cycle of ups and downs.

Ten years ago, there was a considerable interest shown in the matter of drying paper. The drying committees of the various organizations carried on research work and made some very good progress in establishing standards by which drying performance could be judged. The interest then seemed to wane and during the last three or four years we have heard very little about the question.

From an engineering standpoint it would seem that the subject has not been given anywhere near the attention that it deserves. The wide difference of opinion that exists, concerning some of the fundamentals of drier drainage and heat transfer indicates clearly that there is need for further work on the subject so that the theory of heat transfer through drier shells can be definitely established.

The matter of heat transfer through a drier shell was covered by a paper submitted before the annual meeting of T. A. P. P. I. last February. This paper covered the problem of obtaining the very best possible heat transfer through the driers and outlined the various factors which tend to retard the flow of heat. Since this paper has been reprinted in various trade journals, it seems unnecessary, at this time, to go into detail concerning the methods used for testing or to cover in detail the theory of heat transfer.

After all, the most important part in any undertaking, whether it be making paper or evaporating water, is the results that are obtained. I will, therefore, cover the subject of heat transfer as briefly as possible.

There are seven main factors which affect the transfer of heat through a drier shell. These can be tabulated as follows:

1. Oil and scale on the inside of driers.
2. Rust and size accumulations on the outside of driers.
3. Water film on the inside.
4. Air film on the outside.
5. Circulation within the drier.
6. Accumulation of condensate within the drier.
7. Accumulation of air within the drier.

### Oil and Scale on the Inside of Driers

The problem of oil accumulating on the inside of a drier shell has been very much overstressed. If your exhaust comes from engines, it is sure to contain more or less oil, but if the proper kind of lubricant is used you should have practically no trouble due to this oil coating the inside of the driers.

We have inspected driers which have been in operation for over twenty years and found them absolutely clean on the inside. In the very few instances which have come to our attention, where oil has actually been found on the inside of driers, it has been due to very poor management and poor housekeeping. Any drier that is given even the slightest amount of attention should not be troubled with an accumulation of oil and rust on the inside.

### Rust and Size Accumulation on the Outside of Driers

The coating of size and rust which tends to collect on the wet end driers offers much resistance to the transfer of heat.

Good doctors on these driers are sure to show an improvement in drying. However, many claim that this coating is beneficial since it prevents a light weight sheet from sticking to the driers and also helps to eliminate cockling on certain grades of paper.

The consensus of opinion in the best mills today, however, seems to be that these troubles can be overcome by careful handling of the temperature on the first two or three driers. It would, therefore, seem advisable to equip all wet end driers with good doctors and keep these driers in the very best of condition.

### Water Film on the Inside

We bring this point up, not so much because of its importance in actually retarding the flow of heat, but rather to show that more attention has been paid to this factor than is really necessary.

Numerous patents have been taken out covering methods of removing this film. One method places a doctor or scraper on the inside of driers with the idea of wiping the film off mechanically. Another patent uses a series of nozzles so placed that the incoming steam is blown directly against the inside of the drier, the velocity of this steam tending to break through and dislodge the film.

The actual drop through this water film is never more than 1 degree and a resistance as small as this surely is not important enough to be considered in practical, everyday drying.

### Air Film on the Outside

Since it is impossible to completely displace the film of air between the paper and the face of the drier, we have a factor that can, in some cases, be very objectionable. Air, as we know, is an excellent insulator and every effort should, therefore, be made to displace the film which exists underneath the paper.

We know that a highly polished drier will give a much better contact and, therefore, a much better heat transfer than a rough, uneven surface. A light, even sheet will hug the drier closer and will, therefore, dry better than a coarse, lumpy sheet. More tension on the drier felts will press the sheet against the drier face, which in turn will result in a better heat transfer. Anything that is done to hold the sheet closer to the drier and help displace the air film between the drier and the sheet is sure to be reflected by improved drying conditions.

These first four items, though considered more as minor factors, can become very serious if they are neglected. In a well managed mill we generally find them reduced to a minimum due to good housekeeping. In a poorly managed mill, we find very little attention paid to these factors and as a result the heat transfer and drying is affected to a marked degree.

### Circulation Within the Drier

There seems to be a well established idea that circulation within driers helps to increase the rate of heat transfer. This idea was adopted from the theory of condenser practice, but it would seem that circulation through a small 5/8 inch diameter tube would have an entirely different function than trying to circulate steam through a five foot diameter drier.

We have carried on numerous tests and compared the results with those from other mills, and the only conclusion which we can reach is that circulation, such as exists in regular drying practice today, has no effect whatever on the rate of heat transfer. The test is very simple to any who happen to have access to a surface pyrometer, since a change in heat transfer through the drier shell will show up immediately as a change in the surface temperature of the drier.

Pick out an accessible drier on the machine, blow the return line to atmosphere for five or ten minutes to be sure that the drier is free of air and take the surface temperature with a pyrometer. Then close the return line so there is no circulation aside

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* Presented at the annual meeting of the American Pulp and Paper Mill Superintendents Association, Dayton, Ohio, June 4-6, 1931.

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from that created by the incoming steam. Leave it closed for an hour or so, watching the surface temperature so as to note any change. You will find that there will be no change and yet there has been absolutely no circulation through the drier during this time. It must be concluded, therefore, that circulation through a drier has no effect whatever on the transfer of heat through the drier shell.

### Accumulation of Condensate Within the Drier

This factor has also been given much more consideration than it deserves. All of us in the past have been thoroughly educated and sold on the theory that water within a drier reduces the heat transfer to a considerable degree. We have accepted this theory because, from our own personal observations, we know that a waterlogged radiator does not give out very much heat. However, we must realize that the water in a radiator is entirely at rest and under these conditions, it is impossible for the steam to thoroughly mix with the water and bring it up to temperature.

We are all familiar enough with the operation of open feed water heaters to know that when steam and water can be mixed thoroughly, it is possible to bring the temperature of the water up to within 1 degree of the temperature of the steam. Water which is at rest is a very good insulator but water which is moving and mixing with the steam immediately picks up heat from the steam. This condition holds true on the inside of a drier.

Any water which accumulates in a drier is continually turned and tumbled through the steam so that it maintains practically the same temperature as the steam and since the temperature is the same, the rate of heat transfer remains the same.

Water in a drier, as long as the drier keeps revolving, has absolutely no effect on the transfer of heat through the drier shell. If any of you have any doubt regarding this statement, a simple test will convince you that it is true.

Blow a drier to atmopshere until you are sure that it is free of air. Close the return line and take the temperature of the drier surface with a surface pyrometer. Leave the return closed for a period of eight or ten hours and observe the surface temperature of this drier. We have made numerous tests occur. At the end of this period, you will find from 10 to 12 inches of water in the bottom of the drier, and you will also find that this water has had no effect whatever on the surface temperature of this dryer. We have made numerous tests on driers filled with water and are convinced that water in a drier has no effect whatever on the transfer of heat.

There is one condition where water in a drier does affect the heat transfer and that is on high speed machines where the velocity is high enough to carry the water over and form a solid annular ring. This wall of water completely covers the inside of the drier and aside from a slight eddying, is practically at rest. A drier in this condition, therefore, acts exactly as the radiator which is filled with water and we find it greatly affecting the transfer of heat. However, the minute this annular ring is broken and the water comes tumbling to the bottom, it will in a very short time, warm up to the temperature of the steam and have no effect whatever on the heat transfer.

Please do not misconstrue that we are advocating leaving water in driers since it makes the drier sluggish to quick changes in temperatures and also increases the power required in the drier section.

We have strongly stressed this point mainly because we feel that too much emphasis has been placed upon this unimportant factor with the result that the real offender in drying, namely, air inside the drier, has not been given one-tenth the consideration that it deserves.

### Accumulation of Air Within the Drier

All of us have more or less accepted the idea that air inside of a drier affects the transfer of heat. However, we seem to be satisfied to let it go at that. This probably, is due to the fact that air is a very intangible substance and it is a rather difficult matter to determine definitely whether or not your driers contain air.

When we speak of air in driers, most of us again associate the condition with our past experience of air in radiators. We expect to find the drier filled with cold clammy air that smells like a hens egg that has seen better days. So when we open a petcock on the head of a drier that does not seem to be working just right, and find nice hot white steam blowing from the drier we are a little bit disappointed but convinced that the trouble lies either in the circulation or there must be a slight layer of water on the inside. However, you can rest assured that if that drier were not acting properly, there was air in it, because from our experience, air and air alone is the only thing that will seriously affect the rate of heat transfer. The reason we do not recognize the presence of air is due to its intimate mixture with the steam. You can mix a considerable quantity of air with the steam in your driers and still not be able to detect its presence by ordinary observation.

We have run a number of tests admitting various quantities of air to the drier. We found that a very small amount would drop the temperature from 5 to 7 degrees, and this, on the average machine results in a decrease in drying capacity of approximately 10 to 12 percent. We found that as we increased the amount of air let into the drier, the temperature dropped in proportion. With a drier whose normal temperature was 265 degrees, it was possible, by admitting air, to drop the temperature to 220 degrees and hold that temperature down almost indefinitely as long as the air remained in the drier. However, as soon as the return line was opened and the air allowed to escape, we found that the temperature could be brought back to normal in less than fifteen minutes.

It would, therefore, seem that even though air is vitally important and one of the greatest factors which influences the transfer of heat, nevertheless, with a very slight amount of circulation through the drier, air can be easily and permanently removed.

Our experiments convinced us very definitely that there was only one real offender which influenced the transfer of heat and that was accumulation of air within the drier.

The question naturally arises as to the best method of locating driers which are airbound.

### The Use of a Surface Pyrometer in Studying Drier Performance

As far as we know, there is only one sure method of determining the actual condition of a drier and that is by taking the surface temperature with a surface pyrometer.

On the average machine, drying around one pound per square foot per hour, there need be a drop of only 10 to 12 degrees between the steam temperature on the inside and the surface temperature on the outside, in order to transmit the required amount of heat. In other words, if your driers are operating at a pressure of 10 pounds, you will have a temperature on the inside of 239 degrees. The outside surface temperature of the driers with the sheet on the machine should, therefore, not be less than 228 to 230 degrees. This average drop of ten degrees graduates, of course, through the machine with around 15 degrees at the wet end to around 5 degrees at the dry end. If you have an average drop of much more than 10 degrees you may feel sure that your driers contain air.

Checking the surface temperature with a pyrometer will, therefore, quickly tell you the exact condition of your driers. Remember in doing this that an unnecessary drop of 5 degrees, though it may seem insignificant, has robbed you of 10 per cent of your drying and a drop of 20 degrees has lowered the effectiveness of heat drier 50 per cent. This then seems to be the explanation of why two machines running side by side and operating under the same conditions will vary in drying performance. When a machine seems to be lagging on production, a check of all the

driers, with a surface pyrometer will gradually show a number of them that are not working to capacity.

### Importance of Syphon Pipe Inspections

If your drainage system is properly designed and you are maintaining a differential through your driers of at least 1½ pounds, you will find only one other place to look for trouble and that is the syphon pipe. Most people conclude when they install a patented drainage system that from then on their troubles will be over. This is far from being true. The syphon pipes are really the heart of your whole system and unless they are properly adjusted, are open and functioning right, you are sure to run into drying difficulties. We have found that invariably, when a drier is not doing its work the trouble lies in the syphon. To inspect all syphons regularly is quite a job. To take the temperature of driers regularly and spot those that are in need of attention is a relatively simple task, and should be done by any mill which is pushing production to the limit.

### Summary

Summing up the problem of obtaining the best possible performance from a set of driers, we find the whole matter exceedingly simple.

First—Keep your driers clean both inside and out so as to offer the least possible resistance to the flow of heat.

Second—Keep your sheet pressed as tightly to the driers as permissible.

Third—See to it that enough circulation is maintained through every drier to prevent the accumulation of air.

Fourth—Inspect your driers regularly with a surface pyrometer in order to detect those whose syphon pipes are out of order.

If you have done all of these, you have done as much as is possible, for any man to do and you can feel sure that your driers are operating to their full capacity. If you still fail to get the desired production, the trouble will no doubt be located in the presses or wet end.

# Problems Involved In the Use of Iron Pyrites In Sulphite Pulp Manufacture*

By Horace Freeman[1]

Paper manufacturers in the United States are blessed with ample and cheap supplies of pure brimstone with which to prepare their sulphite acid. In Europe, both before and since the introduction of cheap sulphur from the Southern United States, it has been customary to use both pyrite, which contains from 40 to 50 per cent sulphur, and pyrrhotite, which contains 30 to 37 per cent of sulphur, for this purpose. In Canada the development of the paper trade has been more recent and it has naturally followed along the lines of least resistance, so that the uniform practice, up to the present, has been to use the Southern sulphur, which has been more easily available and simpler to use than pyrite. In recent years, however, the mining industry in Canada has seen a great and rapid development. The flotation process of concentrating copper and zinc from the mixed sulphide ores which are abundant in Canada, now makes available both in Canada and the United States large quantities of a concentrate of iron pyrite, finely divided and containing 50 per cent of sulphur. It was felt that, if the handling and burning of this concentrate could be reduced to mechanical simplicity comparable with sulphur, then it would be accepted by the paper industry on account of the economics to be made.

In attempting to introduce this material to the Canadian paper industry, a number of problems were encountered, among them being, the high cost of the mechanical roasters required for pyrite, the wear and tear on the mechanical equipment due to the excessive heat developed, the weaker gas produced, the problem of washing the gas free from visible dirt, the disposal of the fine iron oxide powder in the vicinity of a paper mill, the extra size and attention required for the installation and the possible effects of impurities in the pyrite among which it was said that selenium was to be feared. With these problems in mind, an attempt was made to handle pyrite as a powdered fuel, strictly as a chemical engineering operation, in such a manner as to meet all the objections which could be put forward by the sulphite manufacturers. For this purpose the Sulphide Research Corporation was formed, several initial furnaces were experimented with and finally a commercial plant has been erected and put into operation at the St. Maurice Division of Canada Power Paper Corporation, at Three Rivers, Quebec.

The pyrite preferred for this process is flotation pyrite dried down to about 2 per cent or a 3 per cent moisture content and containing 50 per cent or so of sulphur on the dry basis. It has been determined, however, that the ordinary large-lump pyrite, containing 45 per cent sulphur, can be quite successfully used. The material is fed from the storage hopper into the ball mill, which serves as a dryer, as a grinder, and to bring the sulphide into suspension in the air. In the case of lump pyrite, the full charge of balls is used in the mill, but in the case of flotation material a very light charge of balls is used, since it is only necessary to break up any agglomeration. Warm air is let into the mill to carry out the material brought into suspension, through the fan and then into the primary combustion chamber. In this chamber the temperature is maintained above 1,100 deg. C. in the middle zone, but the temperature of the burning particles is much higher than this, which accounts for a very rapid and complete removal of the sulphur from the particles, which fuse while falling through the atmosphere of the chamber. Ordinary fire-brick construction is used for the walls of the chamber, and, with the chamber of the correct dimensions, no fluxing of the material on the walls is experienced, although in our early experiments and in the experiments of others, a great deal of trouble was experienced from the formation of slag, or scarf, on all sides of the chamber. This has been found to be due to the attempt to burn too much material per unit of time and unit of volume in the chamber, a difficulty which greatly delayed the development of powdered coal combustion methods. In other words, slag or crust formation in this chamber has been overcome by enlarging the chamber. A crust of only about ½-inch thickness forms on the walls and, as the sulphur is practically removed from this, it does not slag, but continually falls off and is renewed. The gases pass into a second combustion chamber and their temperature, at the entrance to the boiler tubes, is in excess of 1,000 deg. C. The velocity in the boiler tubes, which are small, is so high that the tubes are self-scouring and the rate of cooling is very rapid. The rapid cooling of the gases from above 1,000 deg. C. to below 400 deg C. accounts for the almost total freedom of the gases from sulphur trioxide, even though there is a considerable amount of free oxygen and gas-floated catalytic oxide present. The gases leaving the boiler at about 200 deg. C. contain 0.1 per cent sulphur trioxide, and at this temperature and concentration there is no condensation on the

* Presented at the annual meeting of the American Pulp and Paper Mill Superintendents' Association, Dayton, Ohio, June 4-6, 1931.

[1] Sulphide Research Corp., Ltd., Montreal, P. Q.

boiler surfaces. The gases at this temperature enter the final cooling and washing tower, which is packed with acid-proof spiral tile filler, over which is sprayed just the amount of water necessary to cool the gases to within ten degrees of the water temperature. This water, in its passage down the tower, washes out the dust and dissolves traces of sulphur trioxide, as well as other impurities, and becomes heated, so that as it discharges at the bottom of the tower its temperature is from 70 to 80 deg. C. The dimensions of the washing tower and the amount of water used in it are, of course, proportional to the volume of gases to be handled and their entering temperature. These have been closely defined and reduced to commercial practice. It will be seen that the boiler and washing tower together comprise the cooling system and are the equivalent of the lead pipe externally-cooled systems which are at present used on brimstone installations. It has been found that this cooling system is cheaper to install and to operate, and that there is a difference of at least 3 per cent to 5 per cent in the efficiency of sulphur conversion to sulphur dioxide by this rapid-cooling method. Here it may be remarked incidentally that the temperatures developed by pyrite are considerably higher than the temperatures developed in the present practice of handling sulphur, and this is a factor in preventing the initial formation of trioxide. In other words, it is stated that a careful examination of sulphur combustion systems shows that rarely more than 95 per cent of sulphur is converted to available sulphur dioxide, whereas in this process we consistently maintain more than 98 per cent conversion. Frequently, in operating sulphur burners, we have found that the conversion of sulphur to dioxide is extremely poor, often as low as 85 per cent; in fact, it has been our experience that an efficiency of 95 per cent is rarely obtained in paper-mill practice. As will be seen from the following figures, which are taken from the operating report, about 0.5 per cent of the total sulphur used is lost as trioxide, and about 0.5 per cent as dioxide, in the scrubber water. The remaining sulphur lost is in calcine, making a total sulphur loss of 1.38 per cent.

The steam yield somewhat exceeds one pound of steam per pound of pyrite consumed, this paying the cost of the operation of the burner. The oxide produced is in the form of fused particles, or hollow shells, of magnetite, containing about 65 per cent of iron. It, of course, contains the gangue material ordinarily found in flotation concentrate, but it is being found that, by magnetic separation, most of this can be eliminated and the sulphur content, as consistently produced, is below 0.2 per cent.

### Record of Flash Roaster, Using Pyrite at Three Rivers

November, 1930.

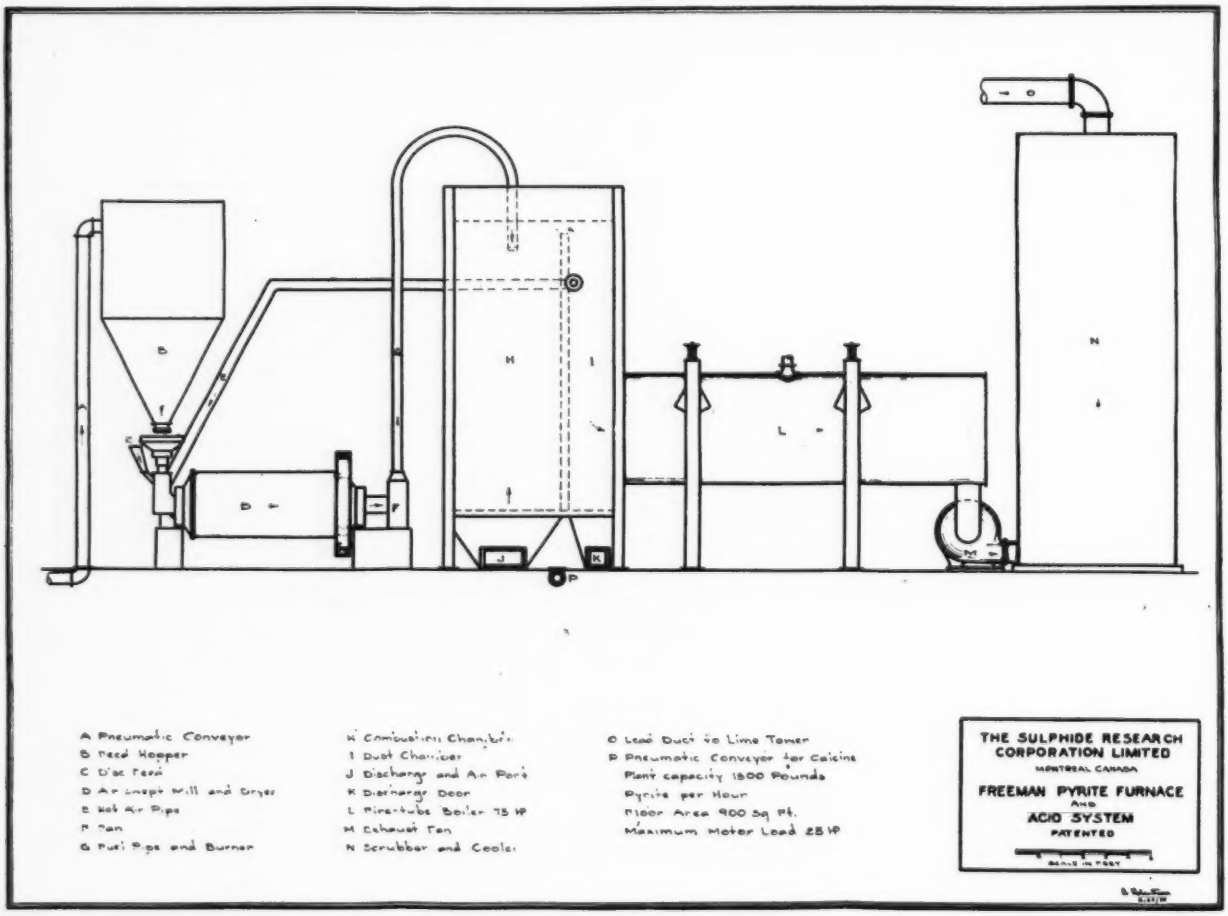
| | |
|---|---|
| Pyrite burnt | 20.83 lb. per min. |
| Equivalent sulphur burnt | 10.415 lb. per min. |
| Cooling water on scrubber | 40.0 lb. per min. |
| $SO_3$ in cooling water | 0.3472 per cent |
| $SO_3$ in cooling water | 0.1388 lb. per min. |
| Sulphur in cooling water, as sulphur trioxide | 0.0493 lb. per min. |
| Sulphur in cooling water, as sulphur trioxide | 0.4733 per cent of the total going in |
| $SO_2$ in cooling water | 0.2976 per cent |
| $SO_2$ in cooling water | 0.1190 lb. per min. |
| Sulphur in cooling water, as sulphur dioxide | 0.0545 lb. per min. |
| Sulphur in cooling water, as sulphur dioxide | 0.5232 per cent of the total going in |

### Total Loss in Scrubber Water

| | |
|---|---|
| Sulphur lost as $SO_3$ in water | 0.4733 per cent of the total sulphur |
| Sulphur lost as $SO_2$ in water | 0.5232 per cent of the total sulphur |
| | 0.9965 per cent of the total sulphur |
| Per cent sulphur in pyrite | 50 per cent |
| Per cent sulphur in sinter | 0.203 per cent |
| Sulphur loss in sinter | 0.2806 per cent |
| Total sulphur loss (sinter, $SO_3$ and $SO_2$ in water) | 1.3846 per cent of the total |
| Recovery as available $SO_2$ | 98.6154 per cent of the total |

### Steam

Equivalent evaporation from and at 212 deg. F. ..... 1,328 pounds per hour



# Research and Lithographic Paper*

By Robert F. Reed[1]

The solution of existing problems in the manufacture and use of lithographic papers is conditional upon cooperative effort between the paper manufacturer and the lithographer. This fact has been in process of realization for a number of years, but it is only recently that actual progress has been made in providing a means and a program by which these problems may be attacked. Those who have studied the existing situation agree that little further progress can be expected through the hit-and-miss methods of the past, and that future progress will depend largely upon cooperative effort directed toward scientific investigation of fundamental principles.

Cooperation between the paper maker and the lithographer began in 1925 with the organization of the Lithographic Technical Foundation. At the present time its members include approximately 250 lithographers and 60 paper manufacturers and dealers, all of whom are alive to the urgent need for research on their mutual problems. The machinery and ink manufacturers are also represented and are obviously interested because of the important role played by paper with respect to their products and the limitations that it appears to impose on efficient performance.

The first step in the investigation consists in a study of the relationship between humidity and paper, and a bulletin entitled "The Characteristics of Paper and Their Relation to Lithography" was published in 1925. It was found that a considerable number of workers had studied the effects of atmospheric humidity on the moisture content and dimensions of paper and that considerable data on this subject was available. Measurements on contemporary samples of lithographic papers substantially checked the results of previous investigations, and it was concluded that effective air conditioning is the logical solution of the problem of changing weather conditions.

Unfortunately, the problem of stretch and shrinkage of paper caused by changes from wet weather to dry weather and vice versa, while important, is only one phase of the problem of misregister. A few lithographic plants have installed equipment to manufacture constant weather conditions, and their experience indicates that difficulties in securing register have been reduced by air conditioning to such an extent that there are no regrets concerning the expense involved. In these plants, shut downs because of unfavorable weather are a thing of the past. Static electricity is no longer a menace. Still, misregister occurs, but to a lesser extent, and other causes than that of varying relative humidity are brought to the front.

It must be remembered that the great majority of lithographic plants are still at the mercy of the weather, and for many of them the means for weather control seems unreasonably expensive, especially in view of the fact that it is not a cure-all for register troubles. It must also be remembered that the great majority of lithographic operators, and paper men as well, do not know and cannot be expected to understand the science of air conditioning, which is essentially a branch of engineering and requires specialized training to master. The lithographic industry, however, is passing through an interesting period of evolution in which education and research are playing an important part. The constantly increasing number of engineers and chemists that are coming into the industry indicates that air conditioning and other technical improvements will be recognized and adopted on an increasing scale; that scientific knowledge and data will be more systematically applied toward the solution of existing problems.

Lithography is essentially an art of graphic reproduction. Like every other art, it has an underlying basis of scientific facts. This science, however, remains largely to be discovered. It is very doubtful if important new developments will be made by the trial and error methods of the past. Students of lithography agree that little further advance may be expected until the underlying science is further developed and made available.

To accomplish this is the object of the present program of fundamental research. It is the purpose of this paper to discuss that part of the work which involves investigation of the nature of paper and its adaptation to the fundamental requirements of lithography.

After a careful survey of the paper problems of lithographers and their economic importance, the Lithographic Technical Foundation asked and secured the cooperation of the United States Bureau of Standards in conducting research toward their solution. Active work on this program began July 1, 1930. Investigational work is being carried on by the Bureau with the cooperation of an Advisory Committee appointed by the Lithographic Technical Foundation. The lithographic, paper, machinery, and printing ink industries are ably represented on this Advisory Committee. The program is divided into four parts, which will be discussed in the order of their importance.

### Misregister

Previous mention has been made of the relationship between atmospheric humidity and the moisture content and dimensions of paper. Changing weather conditions and related variations in paper constitute one of the primary as well as one of the best understood causes of misregister. Stretch and shrinkage, cockling and buckling of paper in the pile, curing, and static electricity are direct results of variations in atmospheric humidity. Granted that air-conditioning will eliminate these troubles, 95 per cent or more of the lithographic paper consumed today is handled in shops which have little or no control over atmospheric conditions. On the other hand, lithographic paper varies as much in its characteristics as the ideas of paper men vary with regard to how a lithographic paper should be constructed. What is needed, and what is being done, is to uncover fundamental facts so that the variety of opinion will tend to become unity. It is not too much to expect that when the desired characteristics of paper are known and controlled, much of the troublesome variation will disappear and the hazards of lithography, even under uncontrolled weather conditions, will be greatly reduced.

Less is known concerning mechanical stretch. This phenomenon is evidenced by lateral misregister at the back edge of the sheet, while the register at the gripper edge is satisfactory. It is probably caused by a "fanning out" of the sheet as it receives the impression squeeze. Unlike the impression in relief printing, the impression on the offset press is the same on both printed and non-printed areas of the sheet. A greater degree of flatness is therefore required in offset paper than in paper for letter press printing.

The study of the mechanics of offset printing and the physical and structural properties of offset paper now under way should yield sufficient information to indicate the optimum composition and structure of paper to meet the mechanical requirements of offset lithography. Data will be obtained on the amount of moisture transmitted to the paper by each impression, both directly to the blank areas and, in an emulsified form, by the ink.

* Presented at the annual meeting of the American Pulp and Paper Mill Superintendents Association, Dayton, Ohio, June 4-6, 1931.

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Mechanical stretch will be related to printing pressure and to relative humidity. This information should make it possible to establish the optimum air condition for lithography, about which there is a variety of opinion at present. Both the paper maker and the lithographer will profit.

Misregister is by far the most important paper problem of the lithographer and therefore occupies first place on the research program. Other problems of somewhat lesser importance will be attacked in the proper order.

### Creasing and Scumming

It is a fairly common complaint among lithographers that coated paper, and even certain types or lots of uncoated papers, cause plates to scum. The printing plate in lithography consists of a grained metal plate, either zinc or aluminum, the printing areas of which are so treated as to be receptive to ink, the blank areas being chemically treated to make them receptive to moisture. There is no relief to the design whatever. Scumming or greasing occurs when the blank areas lose their resistance to the ink and begin to print a smudge or scum.

Resistance of the plate to ink is due to a thin film of colloidal jelly produced by the action of a solution of acidified gum arabic. This film is stable within a comparatively narrow pH range, and the dampening water is adjusted accordingly. The presence of soluble alkalies in coated paper which can be extracted and transmitted to the plate surface have the effect of removing its protective film and rendering it non-resistant to ink, with disastrous results. In uncoated paper, the presence of free alum and chlorides have a similar effect but to a lesser degree. Certain colloidal substances in coated paper are dissolved by the dampening water, and while they do not attack the protective film on the plate, apparently they increase the tendency of the ink and water to emulsify. In such cases a uniform tint is gradually developed which prints all over the blank areas of the paper. These activities have puzzled lithographers ever since Senefelder's time, and the entire subject needs a thorough investigation. With sufficient knowledge, paper makers will be in a better position to supply paper free from scumming tendencies.

### Paper and Ink

Very little real knowledge is available regarding the mutual affinities and antagonisms between paper and ink. The lithographic pressman develops a knack of estimating the ink demands of the various types of paper through long and sad experience, but this knack fails him from time to time for no apparent reason. Then it is a matter of cut and try and consequent spoilage and delay.

Among the lithographers, ink troubles which are related to variations in paper characteristics are "setting off" and "failure to dry." The moisture content of paper is thought to bear some relation to these troubles. Temperature is probably an important factor. There are other factors also which are not understood. Occasionally, a lot of paper is found upon which the ink refuses to dry. Driers may be added to the ink to such an extent that it dries on the press rollers but it still fails to dry on the paper. Generally, the paper is supposed to be identical with a previous lot which gave no similar trouble.

Research on these problems should make possible some degree of standardization of the paper characteristics which affect ink reception and drying and supply the lithographer with facts that will enable him to compensate for the effect of weather conditions.

### Paper and Adhesives

Lithographers who specialize in the printing of labels and posters have, in addition to the previously mentioned difficulties, some special problems connected with the application of adhesives to paper. In this case, the degree of rosin sizing and porosity of the paper probably play an important role. There is some indication also that the formation of the sheet determines whether or not excessive stretch, wrinkling, or rupture of the pasted sheet will take place.

### Conclusion

From the foregoing, it is evident that here is a fertile field for investigation and that the expected results may find application in the development of technical specifications for lithographic paper. If such a program is successful, it will be to the great benefit of both the paper maker and lithographer. In spite of this logical conclusion, there are some paper men who feel that the lithographer's problems will best be taken care of if he will "purchase paper from a reliable manufacturer who knows how to make a satisfactory product." If these paper men knew the requirements of lithography and the paper troubles involved and how to meet them, this would be true. A little questioning, however, reveals the basis of this reasoning is the conception that the lithographer's paper troubles are mostly psychological. Granted that this is at least partly true, the temperamental lithographer will be more reasonable if he can be shown undisputable facts. It is to be hoped that the paper industry will meet him half way in the support of this work.

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## Determining the Scope of the Invention

As has already been pointed out, it is very important that the application for patent be filed as soon as possible. The inventor should, however, avoid rushing to the Patent Office with an incomplete invention or before he has studied his device sufficiently to recognize its full significance. In this connection it may be stated that the invention need not be brought to a high state of perfection in its mechanical details. If the invention is a pioneer in its field, it is usually only necessary to show the general arrangement of the elements. In any event, the relationship of the parts need not be stated in the application with mathematical exactness. A safe rule is not to file the application until the inventor has so worked out his ideas that he can explain them to others and has embodied them in a device or process which he is satisfied will work.

To fully understand the significance of his invention and its scope, the inventor must view it in its true relation to other existing inventions and devices. A search through the patent and technical literature is ordinarily advisable. The inventor should also make a careful study of all possible modifications of the invention which still include its basic concept and determine what elements, if any, are dispensible or non-essential or may be varied without losing the advantages of his invention. Furthermore, he should take steps to determine how the invention may be applied in various fields. This may require extensive engineering and research with the assistance of competent technicians.

The importance of determining the scope of the invention before filing the application is brought out in the following excerpt from the Industrial Bulletin:

"If in the first instance, the inventor files a broad basic application and secures a patent for it, he may later be able to obtain narrower patents which concern the use of his basic principle in limited portions of the broad field. However, if he first secures a patent on the use of his invention in a narrow portion of the field, any subsequently filed application of his cannot result in a broad basic patent on the invention, even if such a patent would have been justified if its application had been filed before the issue of the narrow patent."

The results of the investigation and research above outlined should be made available to the person preparing the application for filing. A study of many litigated patents clearly indicates that a large proportion of them are poorly drawn because the attorneys were erroneously or imperfectly informed as to the inventions covered by the patents or as to their relationship to other existing means of accomplishing the same or equivalent results.

*Note: This is the ninth of a series of contributions from the Patents Committee of the Technical Association of the Pulp and Paper Industry. All others have appeared in this publication during the past year.*

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WEEK ENDING JUNE 6, 1931

### SUMMARY

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|---|---|
| Cigarette paper | 552 cs. |
| Wall paper | 8 bls., 18 cs. |
| Paper hangings | 1 ble., 2 cs. |
| Painted paper | 1 cs. |
| News print | 6176 rolls |
| Printing paper | 12 rolls, 138 cs. |
| Packing paper | 16 bls. |
| Wrapping paper | 23 bls., 14 cs. |
| Filter paper | 178 bls., 21 cs. |
| Drawing paper | 39 cs. |
| Decalcomania paper | 21 cs. |
| Gold coated paper | 4 cs. |
| Metal coated paper | 60 cs. |
| Coated paper | 12 cs. |
| Surface coated paper | 106 cs. |
| Photo paper | 17 cs. |
| Colored paper | 9 cs. |
| Tissue paper | 5 cs. |
| Writing paper | 7 cs. |
| Envelopes | 1 cs. |
| Paste board | 48 cs. |
| Veneer paper | 1 cs. |
| Card board | 45 cs. |
| Miscellaneous paper | 190 rolls, 93 bls., 117 cs. |

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Standard Products Corp., Ile de France, Havre, 48 cs.
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American Tobacco Co., Ile de France, Havre, 186 cs.
H. H. Strauss, Ile de France, Havre, 10 cs.
R. J. Reynolds Tobacco Co., Vincent, Havre, 2 cs.
De Manduit Paper Corp., Vincent, Havre 1 cs.

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F. J. Emmerich, A. Ballin, Hamburg, 7 cs.
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——, A. Ballin, Hamburg, 234 rolls.
Baldwin Paper Co., A. Ballin, Hamburg, 31 rolls.
——, A. Ballin, Hamburg, 37 rolls.

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——, Stuttgart, Bremen, 38 cs.
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F. C. Strype, Rotterdam, Rotterdam, 11 cs.
E. Dietzgen & Co., Rotterdam, Rotterdam, 58 cs.
T. N. Fairbanks Co., Rotterdam, Rotterdam, 10 cs.
C. Steiner, Westernland, Antwerp, 7 cs.
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International F'd'g Co., A. Ballin, Hamburg, 6 cs.

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Royal Manfg Co., Ala, Antwerp, 21 bls. cotton waste.
Chemical National Bank, Ala, Antwerp. 14 bls. flax canvas.
International Trust Co., Ala, Antwerp, 132 bls. rags; 250 bls. bagging.
E. J. Keller Co., Ala, ——, 68 bls. rags; 63 bls. bagging.
Katzenstein & Keene, Inc., Ala, Antwerp, 265 bls. rags.
S. Birkenstein & Son, Cabo Mayor, Valencia, 160 bls. rags.
E. J. Keller Co., Inc., Maryland, ——, 53 bls. new rags.

### OLD ROPE

S. Birkenstein & Son, Examiner, Oran, 29 coils.
International Purchasing Co., Exochorda, Genoa, 70 coils.
Brown Bros., Harriman & Co., Cabo Mayor, Huelva, 255 coils.

### CASEIN

Tupman, Thurlow Co., Inc., Capillo, B. Ayres, 334 bags, 44,183 lbs.

### WOOD PULP

Perkins, Goodwin & Co., Karpfanger, Sundsvall, 600 bls. sulphite.
——, Karpfanger, Hernosand, 750 bls. sulphate, 125 tons.
——, Karpfanger, Hernosand, 3,000 bls. sulphite, 500 tons.
Johaneson, Wales & Sparre, Inc., Inc., Karpfanger, Svartvik, 300 bls. sulphite.
Johaneson, Wales & Sparre, Inc., Karpfanger, Soraker, 3,625 bls. sulphite.
J. Andersen & Co., Etna, Hernosand, 3,000 bls. sulphite, 500 tons.
Bulkley, Dunton & Co., Etna, ——, 2,500 bls. wood pulp, 500 tons.
M. Gottesman & Co., Inc., Etna, Iggesund, 3,375 bls. sulphite, 675 tons.
E. M. Sergeant & Co., Bergensfjord, Oslo, 150 bls. chemical pulp.
Irving Trust Co., Stuttgart, Bremen, 900 bls. wood pulp.
Castle & Overton, Inc., Rotterdam, Rotterdam, 150 bls wood pulp.
Perkins, Goodwin & Co., Kungsholm, Gothenburg, 612 bls. sulphate.
J. Andersen & Co., Kungsholm, Gothenburg, 125 bls. sulphite.
M. Gottesman & Co., Inc., Kungsholm, Gothenburg, 1,170 bls. sulphite.
Russell McCandless, Kungsholm, Gothenburg, 398 bls. dry ground wood.
Russell McCandless, Kungsholm, Stockholm, 800

*(Continued on page 92)*

Cotton and Paper Rolls
Super Calenders
Friction Calenders
Embossing Calenders
Hydraulic Presses and Pumps

*Successors to the Granger Foundry & Machine Co.*

**The Textile-Finishing Machinery Company**
**PROVIDENCE, R. I.**

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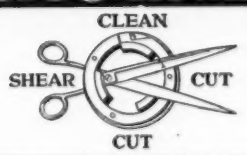


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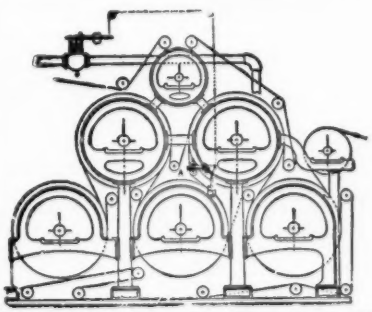

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will do everything we claim for it and more. The test costs you nothing until you are satisfied. Many mills tried one and now have every machine equipped. Write for list of users and other information.

**W. F. PICKLES** **Buckland, Conn.**

# Imports of Paper and Paper Stock

*(Continued from page 90)*

bls. unbleached sulphite.
Castle & Overton, Inc., A. Ballin, Hamburg, 770 bls. wood pulp, 154 tons.
—, A. Ballin, Hamburg, 130 bls. wood pulp, 26 tons.
J. Andersen & Co., Saturnia, Trieste, 1 bl. wood pulp.
E. J. Keller Co., Inc., Keifuku Maru, ——, 367 bls. wood pulp.

WOOD FLOUR

Trust Co. of New Jersey, Rotterdam, Rotterdam, 200 bags.
Innes, Speiden & Co., Kungsholm, Gothenburg, 508 bags.

## PHILADELPHIA IMPORTS

WEEK ENDING JUNE 6, 1931

Bulkley, Dunton & Co., Karpfanger, ——, 250 bls. wood pulp, 50 tons.
——, Karpfanger, Hernosand, 3,372 bls. sulphate, 562 tons.
——, Karpfanger, Hernosand, 72, bls. sulphite, 12 tons.
Parsons & Whittemore, Inc., Karpfanger, Sundsvall, 126 rolls news print.
Johaneson, Wales & Sparre, Inc., Karpfanger, Sundsvall, 2,400 bls. sulphite, 406 tons.
Strawbridge & Clothier, Schodack, Havre, 1 cs. writing paper.
J. A. Steer & Co., Schodack, Havre, 166 bls. rags.
V. Galamp, Schodack, Havre, 145 bls. rags.
E. J. Keller Co., Inc., Schodack, ——, 83 bls. rags.
Katzenstein & Keene, Inc., Schodack, Dunkirk, 71 bls. rags.
Hoffman Lion Mills, Tai Ping Yang, Kobe, 45 bls. rags.
Union Waste Co., Tai Ping Yang, Kobe, 90 bls. rags.
J. M. Hagy Waste Works, Tai Ping Yang, Kobe, 12 bls. rags.
——, Cabo Mayor, Marseilles, 180 bls. rags.
E. J. Keller Co., Inc., London Exchange, ——, 77 coils old rope.

## BALTIMORE IMPORTS

WEEK ENDING JUNE 6, 1931

Bulkley, Dunton & Co., Karpfanger, ——, 1,750 bls. wood pulp, 350 tons.
Parsons & Whittemore, Inc., Karpfanger, Sundsvall, 425 rolls news print.
Knut J. Lundahl, Karpfanger, Svartvik, 8,100 bls. sulphite.
M. Gottesman & Co., Inc., Karpfanger, Svartvik, 6,330 bls. sulphite.
Johaneson, Wales & Sparre, Inc., Karpfanger, Soraker, 1,175 bls. sulphite.
Irving Trust Co., Etna, Hernosand, 2,125 bls. sulphate, 354 tons.
J. Andersen & Co., Etna, Hernosand, 1.050 bls. sulphite, 175 tons.
Bulkley, Dunton & Co., Etna, ——, 750 bls. wood pulp, 150 tons.
Parsons & Whittemore, Inc., Etna, Iggesund, 875 bls. sulphate, 175 tons; 250 bls. sulphite, 50 tons.
M. Gottesman & Co., Inc., Etna, Iggesund, 4,500 bls. sulphite, 900 tons.
Russell McCandless, Sparreholm, Stockholm, 750 bls. unbleached sulphite.
S. Shapira & Son, Vincent, Dunkirk, 85 bls. rags; Hutzler Bros., Vincent, Havre, 1 cs. writing paper.
M. W. Pryor, Vincent, Havre, 1 cs. writing paper.
E. Butterworth & Co., Inc., Ala, Antwerp, 88 bls. bagging.
Congoleum Narin Co., Ala, Antwerp, 78 bls rags.

## NORFOLK IMPORTS

WEEK ENDING JUNE 6, 1931

——, Vincent, Havre, 177 bls. bagging.
Castle & Overton, Inc., Ala, Antwerp, 40 bls. bagging.
E. J. Keller Co., Inc., Sacandaga, ——, 34 bls. rags.

## BOSTON IMPORTS

WEEK ENDING JUNE 6, 1931

G. F. Malcolm, Britannic, Liverpool, 7 cs. tissue paper.
E. J. Keller Co., Inc., Clairton, ——, 65 bls. bagging.

## Japanese Paper Production

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 13, 1931—Paper production in Japan during February as reported by mills comprising the Japanese Paper Manufacturers' Association, aggregated 56,417 short tons as against 54,277 tons in the preceding month and 56,250 tons during the corresponding month last year.

The heaviest decreases, compared with a year ago, is in printing papers, news print having dropped from 23,747 tons to 22,321 tons, other ordinary printing papers from 4,838 tons to 4,411 tons, and best grade printing papers from 7,334 tons to 6,064 tons. Production of writing and drawing papers during February on the other hand amounted to 1,805 tons as against 1,251 tons during the corresponding month of last year.

## Zellerbach Paper Co. Changes

Frank Stratford, manager of the San Francisco Division of the Zellerbach Paper Company, recently announced several changes in the personnel of that division of the company. These changes became effective May 1, according to Mr. Stratford.

A. F. Neumann was made assistant sales manager of the Printing Paper Department, with special outside duties calling on the various printers and advertising concerns in creating new business.

In announcing the promotion, Mr. Stratford states that: "Mr. Neumann has served the company for many years in a sales capacity and earns the promotion through hard, conscientious and intelligent work. His thorough knowledge of papers and paper products will ably fit him to serve in this new position." Mr. Neumann is the son of A. L. Neumann of the Los Angeles Division of the Zellerbach Paper Company, who has the distinction of being the oldest employee in the company, having served them for over forty years.

Milton L. Colton continues in his present position as assistant sales manager of the Printing Paper Department, as in the past.

Another announcement was just made that J. J. Connolly will be sales representative in the Mission District in San Francisco, calling on wrapping paper accounts. Mr. Connolly has been given this promotion by merit and many years of service with the company.

Harry Gassett, representative of the company in Northern California territory, has been promoted to the San Jose Division, and James Van Pelt will cover the territory formerly served by Mr. Gassett.

## Phillips' Paper Trade Directory Out

The new edition of "Phillips' Paper Trade Directory of the World", just published, contains many features which will appeal to paper manufacturers and merchants, and also the pulp and other allied industries. Many thousands of corrections, new entries and deletions have been made in this volume. Perhaps the greatest value of this work is the completeness of the listing of paper mills in every country of the world where such are operated. The directory is published by S. C. Phillips & Co., of 47 Cannon street, London, E. C., price twenty-one shillings.

## Awards for Government Paper

WASHINGTON, D. C., June 10, 1931.—The Old Dominion Paper Company has been awarded the contract for furnishing the Government Printing Office with 10,000 sheets of 22 x 28 red railroad board at $27.45 per M, bids for which were received on May 18.

The Tarentum Paper Mills, Tarentum, Pa., will furnish 37 x 44 high finish red sulphite paper at 10 cents per pound, bids for which were received on May 16.

## Fir-Tex Reopens Plant

PORTLAND, Ore., June 6, 1931.—The Fir-Tex Insulating Board company which closed its plant at St. Helens, Ore., for two months, began operating again June 1 with enough contracts for the full month running day and night, employing 100 men. The possibility that the work will continue through part of July is intimated.

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"HAFSLUND BEAR"
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"FORSHAGA"
Bleached Sulphite

"HURUM SPECIAL"
Extra Strong Kraft

"BAMBLE"
Extra Strong Kraft

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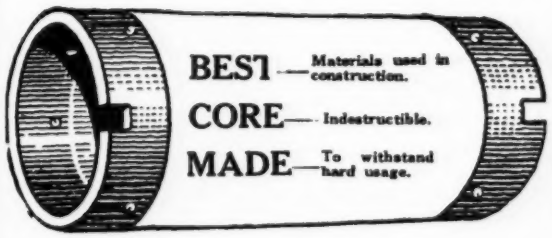


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Elixman Paper Core Company
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WOOD PULP
AGENTS

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*Manufacturers of*

SUPERCALENDERED
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MACHINE FINISHED BOOK
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PAPERS

Offset, Envelope, Bond, Writing Cover and Music Paper, High Grade Coated Book, Index Bristol, Post Card, Kraft and Label Papers

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**Bleached Spruce Sulphite and Soda Kraft Pulp**

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503 Market St., San Francisco, Cal.
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## New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, June 10, 1931.

Trading in the local paper market was only moderately active during the past week. Demand for the various standard grades of paper is mostly along seasonal lines. Sales forces of the leading paper organizations are making every effort to book orders and are fairly optimistic over the outlook for the near future. Prices are generally holding to schedule.

Production of news print paper is being maintained in sufficient volume to take care of current requirements. Contract shipments are moving in fair volume for the time of year. Some inquiries for future needs are reported around. The price situation continues unchanged despite continued efforts to stabilize the industry.

Demand for the various grades of paper board is light and prices are somewhat easier. The fine paper market is in a sound position considering the prevailing business depression. Tissues are going forward in good volume. The coarse paper market is rather spotty and the request for kraft wrapping paper has fallen off slightly.

### Mechanical Pulp

Steadiness continues to prevail in the ground wood market. Offerings of both imported and domestic mechanical pulp are about sufficient to take care of current needs. Shipments against contract are moving with regularity. Prices are holding to formerly quoted levels, in most instances.

### Chemical Pulp

The chemical pulp market is rather quiet at present. Prices on some of the grades are easier. No. 1 strong unbleached sulphite is quoted at from $1.90 to $2.35; No. 2 strong unbleached at from $1.80 to $2.00, and Mitcherlich unbleached at from $2.05 to $2.25, all on dock, Atlantic ports. No. 1 kraft pulp is selling at from $1.40 to $1.70.

### Old Rope and Bagging

Paper mill interest in the old rope market is very restricted. Demand for domestic and imported old manila rope is light, while small mixed rope continues quiet. Prices generally remain unchanged. The bagging market is fairly steady. Offerings of scrap, gunny, and roofing bagging are limited and prices are firm.

### Rags

The domestic rag market has been rather neglected by the paper mills of late. Request for cotton cuttings shows little improvement. Mixed rags are only moderately active. Roofing grades, however, are in seasonal demand. Prices are nominal. The imported rag market continues dull although there are more inquiries for the roofing grades.

### Waste Paper

Board mill demand for the lower grades of paper stock has fallen off slightly. Prices are somewhat easier. Strictly over-issue news is now quoted at from 35 to 40 cents and strictly folded at from 28 to 33 cents, f.o.b. New York. Quotations on No. 1 white news and No. 1 mixed paper remain unchanged. The better grades of waste paper continue fairly steady.

### Twine

Most of the business transacted in the local twine market during the past week was along routine lines. Supplies are going forward in fairly satisfactory volume for the season. While competition for extra large orders is decidedly keen, prices are generally holding to formerly quoted levels.

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## PAPER AND THE DEPRESSION

(*Continued from page 73*)

lieved to have enabled merchants and others, to carry a smaller part of the total volume of goods going through the process of trade, forcing producers to carry the inventory. This fact may be true in the case of agricultural products, but other industries generally are no worse off in the matter of stock burden than they were several years ago. Stock burden is higher in the paper industry at the present time, but that is a result of the abnormal condition of trade and not to the development of the so-called hand-to-mouth policy, over the past few years. Consider the fact that stock burden in 1929 was lower in most instances than was the case in previous years. Industry has been able to adapt itself to the changing conditions and where conditions of production made it possible to control stocks, current buying methods have shifted no new load to the manufacturers.

In the paper industry, greater progress will necessarily be made in developing budgetary control of operations. The period of mushroom growth in the industry has about ended and future growth will have to be planned more carefully if any return is to be obtained on the investment. Market surveys will have to be made in order to determine definite sales possibilities. Unless the market possibilities are fully realized, it is impossible accurately to budget production operations. The budgets and methods of budgeting will naturally differ with different types of organizations, but the pre-planning of operations cannot be avoided. Competition in the paper and pulp industry is not confined merely to the domestic market, but is world-wide and the inter-play of the forces resulting from this world competition make it necessary to use a great deal of foresight in meeting the problem, not only of making a profit, but of surviving.

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DRAPER BROS. COMPANY
CANTON, MASS.

*Woolen manufacturers since 1856*

# Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, June 10, 1931.

BLANC FIXE.—The blanc fixe market was rather quiet during the past week. Contract shipments are moving in fair volume. The pulp is quoted at from $42.50 to $45 per ton; while the powder is selling at from 3¾ cents to 4½ cents per pound, in barrels, at works.

BLEACHING POWDER.—Trading in the bleaching powder market was only moderately active. The contract movement, however, was well up to average. Prices are holding to schedule. Bleaching powder is quoted at from $2 to $2.35 per 100 pounds, in drums, at works.

CASEIN.—The casein market continues dull. Domestic standard ground is still quoted at 7 cents and finely ground at 8½ cents per pound; Argentine standard ground is selling at 9 cents and finely ground at 10 cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Demand for caustic soda was irregular. Prices are generally holding to former levels. Solid caustic soda is quoted at from $2.50 to $2.55; while the flake and the ground are selling at from $2.90 to $2.95 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is exhibiting a steady tone. Demand continues fairly active. Imported china clay is quoted at from $13 to $21 per ton, ship side; while domestic paper making clay is selling at from $7 to $11 per ton, at mine.

CHLORINE.—Consumption of chlorine is being maintained in satisfactory volume. The contract movement is fairly heavy. Prices are holding to schedule. Chlorine is quoted at $1.75 per 100 pounds, in tanks, or multi-unit cars, in large drums, at works.

ROSIN.—The rosin market is practically unchanged. Grades of gum rosin used in the paper mills are quoted at from $5.55 to $6.40 per 280 pounds, in barrels, at yards. Wood rosin is selling at $4.30 per 280 pounds, in barrels, car lot quantities, at southern shipping points.

SALT CAKE.—Conditions in the salt cake market are fairly satisfactory. Prices remain unaltered. Salt cake is quoted at from $16 to $17; German salt cake at from $15.50 to $16; and chrome salt cake at from $14 to $15 per ton, in bulk, at works.

SODA ASH.—Most of the business transacted in the soda ash market was along routine lines. Prices are generally holding to schedule. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1; in bags, $1.15; and in barrels, $1.38.

STARCH.—Steadiness prevails in the starch market, despite the prevailing restricted demand. Supplies are going forward to the paper mills in fair volume. Special paper making starch is quoted at $2.67, in bags; and at $2.94 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—The sulphate of alumina market is exhibiting a strong undertone. The contract movement is normal. Commercial grades are still quoted at from $1.25 to $1.40; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—Business in the sulphur market is fairly active. Sulphur is quoted at $18 per long ton on orders of 1,000 tons, or over, on yearly contracts, and at $20 per ton for any smaller quantity over that period. On spot and nearby car loads, the quotation is $21 per ton.

TALC.—Offerings of talc are sufficient to take care of current needs. Shipments against contract are moving in fair volume. Domestic talc is quoted at from $16 to $18 per ton, in bulk; while imported talc is selling at from $18 to $22 per ton, in bags, ship side.

# Market Quotations

## Paper

(F. o. b. Mill)

| | | |
|---|---|---|
| Ledgers | 11.00 | @38.00 |
| Bonds | 6.75 | @53.25 |
| Writings— | | |
| Extra Superfine | 14.00 | @32.00 |
| Superfine | 14.00 | @32.00 |
| Tub sized | 10.00 | @15.00 |
| Engine sized | 6.75 | @11.00 |
| Book, Cased— | | |
| S. & S. C. | 5.25 | @ — |
| M. F. | 5.00 | @ — |
| Coated and Enamel | 6.75 | @10.25 |
| Lithograph | 7.25 | @11.75 |
| Tissues—Per Ream— | | |
| White No. 1 | .65 | @ .70 |
| Anti-Tarnish M. G. only | .65 | @ .70 |
| Colored | .70 | @ .90 |
| White No. 2 | .55 | @ .60 |
| Kraft | .65 | @ .70 |
| Manila | .55 | @ .60 |
| Manila— | | |
| No. 1 Jute | 9.00 | @ 9.25 |
| No. 2 Jute | 7.75 | @ 8.50 |
| No. 1 Wood | 4.00 | @ 5.25 |
| No. 2 Wood | 3.50 | @ 4.00 |
| Butchers | 3.37½ | @ — |
| Fibre Papers— | | |
| No. 1 Fibre | 4.25 | @ 5.50 |
| No. 2 Fibre | 4.00 | @ 4.75 |
| Common Bogus | 1.50 | @ 3.00 |
| Screenings | 2.00 | @ 3.00 |
| Card Middles | 4.00 | @ 5.00 |
| Glassine— | | |
| Bleached, basis 25 lbs., No. 1 | .09¾ | @ — |
| No. 2 | .11¼ | @ — |
| Bleached, basis 20 lbs. | .11¾ | @ — |
| (Delivered New York) | | |
| News, per ton— | | |
| Rolls, contract | 57.00 | @ — |
| Rolls, spot | 57.00 | @ — |
| Sheets | 62.00 | @ — |
| Side Runs | 42.00 | @46.00 |
| Kraft— | | |
| No. 1 Domestic | 4.25 | @ 5.30 |
| No. 2 Domestic | 3.50 | @ 4.00 |
| Southern | 3.50 | @ 4.00 |
| Imported | 6.00 | @ 7.00 |
| Boards—per ton— | | |
| News | 30.00 | @32.50 |
| Straw | 40.00 | @45.00 |
| Chip | 27.50 | @30.00 |
| Binders' Boards | 65.00 | @70.00 |
| Standard 85 Test Liner | 32.50 | @35.00 |
| Sgl. Mla. Ll. Chip | 40.00 | @42.50 |
| (F. o. b. Mill) | | |
| Wood Pulp Boards | 70.00 | @80.00 |

## Mechanical Pulp

(On Dock)

| | | |
|---|---|---|
| No. 1 Imported— | | |
| Moist | 27.00 | @30.00 |
| Dry | 30.00 | @34.00 |
| (F. o. b. Mill) | | |
| No. 1 Domestic | 25.00 | @30.00 |

## Chemical Pulp

(On Dock, Atlantic Ports)

| | | |
|---|---|---|
| Sulphite (Imported)— | | |
| Bleached | 2.50 | @ 3.50 |
| Easy Bleaching | 2.15 | @ 2.35 |
| No. 1 strong unbleached | 1.90 | @ 2.35 |
| Mitscherlich unbleached | 2.05 | @ 2.25 |
| No. 2 strong unbleached | 1.80 | @ 2.00 |
| No. 1 Kraft | 1.40 | @ 1.70 |
| No. 2 Kraft | 1.35 | @ 1.55 |
| Sulphate— | | |
| Bleached | 2.75 | @ 3.25 |
| (F. o. b. Pulp Mill) | | |
| Sulphite (Domestic)— | | |
| Bleached | 2.25 | @ 4.75 |
| Easy Bleaching | 2.55 | @ 2.75 |
| News | 1.80 | @ 2.50 |
| Mitscherlich | 2.40 | @ 3.00 |
| Kraft (Domestic) | 1.60 | @ 2.75 |
| (Delivered Paper Mills) | | |
| Soda Bleached | 3.00 | @ — |

## Domestic Rags

### New Rags

(Prices to Mill f. o. b. N. Y.)

| | | |
|---|---|---|
| Shirt Cuttings— | | |
| New White, No. 1 | 7.00 | @ 7.45 |
| New White, No. 2 | 6.00 | @ 6.50 |
| Silesias No. 1 | 5.25 | @ 5.50 |
| New Unbleached | 7.25 | @ 7.75 |
| New Blue Prints | 4.00 | @ 4.50 |
| New Soft Blacks | 3.50 | @ 4.00 |
| Blue Overall | 5.25 | @ 5.50 |
| Fancy | 3.75 | @ 4.00 |
| Washables | 3.50 | @ 3.75 |
| Mixed Khaki Cuttings | 4.00 | @ 4.50 |
| Pink Corset Cuttings | 6.00 | @ 6.50 |
| O. D. Khaki Cuttings | 5.00 | @ 5.25 |
| Men's Corduroy | 3.00 | @ 3.50 |
| New Mixed Blacks | 3.00 | @ 3.25 |

### Old Rags

| | | |
|---|---|---|
| White, No. 1— | | |
| Repacked | 5.25 | @ 5.75 |
| Miscellaneous | 4.25 | @ 4.75 |
| White, No. 2— | | |
| Repacked | 3.00 | @ 3.50 |
| Miscellaneous | 2.30 | @ 2.50 |
| St. Soiled, White | 1.50 | @ 1.75 |
| Thirds and Blues— | | |
| Repacked | 2.25 | @ 2.50 |
| Miscellaneous | 1.65 | @ 1.85 |
| Black Stockings | 3.25 | @ 3.75 |
| Roofing Rags— | | |
| Cloth Strippings | 1.25 | @ 1.30 |
| No. 1 | 1.25 | @ 1.30 |
| No. 2 | .90 | @ 1.00 |
| No. 3 | .70 | @ .80 |
| No. 4 | .65 | @ .70 |
| No. 5A | .50 | @ .60 |

## Foreign Rags

### New Rags

| | | |
|---|---|---|
| New Dark Cuttings | 2.00 | @ 2.15 |
| New Mixed Cuttings | 2.10 | @ 2.40 |
| New Light Silesias | 5.00 | @ 5.38 |
| Light Flannelettes | 5.00 | @ 5.25 |
| Unbleached Cuttings | 7.00 | @ 7.50 |
| New White Cuttings | 6.50 | @ 6.75 |
| New Light Oxfords | 5.00 | @ 5.50 |
| New Light Prints | 3.50 | @ 3.75 |

### Old Rags

| | | |
|---|---|---|
| No. 1 White Linens | 6.50 | @ 6.75 |
| No. 2 White Linens | 5.75 | @ 5.25 |
| No. 3 White Linens | 4.00 | @ 4.50 |
| No. 4 White Linens | 2.50 | @ 3.00 |
| No. 1 White Cotton | 4.50 | @ 5.00 |
| No. 2 White Cotton | 3.50 | @ 4.25 |
| No. 3 White Cotton | 2.50 | @ 3.25 |
| No. 4 White Cotton | 1.50 | @ 1.75 |
| Extra Light Prints | 2.50 | @ 2.75 |
| Ord. Light Prints | 2.00 | @ 2.25 |
| Med. Light Prints | 1.65 | @ 1.75 |
| Dutch Blue Cottons | 1.80 | @ 1.90 |
| French Blue Linens | 2.50 | @ 2.60 |
| German Blue Linens | 2.25 | @ 2.40 |
| German Blue Cottons | 1.75 | @ 1.85 |
| Checks and Blues | 1.60 | @ 1.75 |
| Lindsay Garments | 1.10 | @ 1.20 |
| Dark Cottons | .75 | @ .80 |
| Old Shopperies | .70 | @ .75 |
| New Shopperies | .70 | @ .75 |
| French Blues | 1.80 | @ 1.90 |

## Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

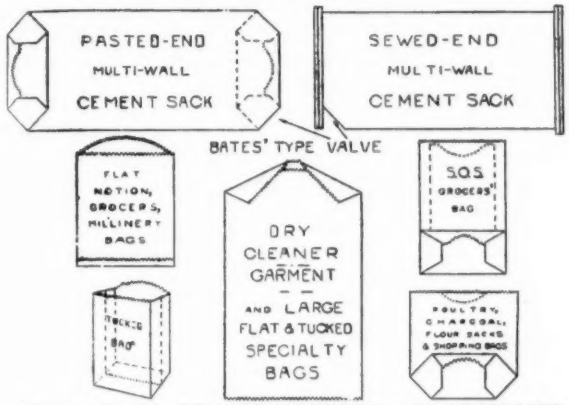
| | | |
|---|---|---|
| Gunny No. 1— | | |
| Foreign | 1.65 | @ 1.80 |
| Domestic | 1.65 | @ 1.80 |
| Wool Tares, light | 1.25 | @ 1.30 |
| Wool Tares, heavy | 1.25 | @ 1.30 |
| Bright Bagging | 1.20 | @ 1.30 |
| Small Mixed Rope | .90 | @ 1.00 |
| Manila Rope— | | |
| Foreign | 2.00 | @ 2.15 |
| Domestic | 2.10 | @ 2.25 |
| New Burlap Cut | 1.80 | @ 1.90 |
| Hessian Jute Threads— | | |
| Foreign | 2.60 | @ 2.75 |
| Domestic | 2.80 | @ 3.00 |

## Old Waste Papers

(F. o. b. New York)

| | | |
|---|---|---|
| Shavings— | | |
| Hard, white, No. 1 | 2.75 | @ 2.85 |
| Hard, white, No. 2 | 2.20 | @ 2.30 |
| Soft, white, No. 1 | 2.20 | @ 2.30 |
| White envelope cuttings | 2.50 | @ 2.60 |
| Flat Stock— | | |
| Stitchless | .80 | @ .90 |
| Overissue Mag. | .80 | @ .90 |
| Solid Flat Book | .75 | @ .85 |
| Crumpled No. 1 | .60 | @ .65 |
| Solid Book Ledger | 1.75 | @ 1.85 |
| Ledger Stock | .80 | @ .85 |
| New B. B. Chips | .20 | @ .30 |
| Manilas— | | |
| New Env. Cut | 2.00 | @ 2.20 |
| New Cuttings | 1.50 | @ 1.65 |
| Extra No. 1 old | 1.20 | @ 1.30 |
| Print | .50 | @ .60 |
| Bogus Wrapper | .50 | @ .60 |
| Container | .25 | @ .30 |
| Old Kraft Machine— | | |
| Compressed bales | 1.10 | @ 1.20 |
| News— | | |
| No. 1 White News | 1.60 | @ 1.70 |
| Strictly Overissue | .35 | @ .40 |
| Strictly Folded | .28 | @ .33 |
| No. 1 Mixed Paper | .15 | @ .25 |
| Common Paper | | Nominal |

POTDEVIN
OVER 60 MODELS OF PAPER BAG
MACHINERY
FOR PLAIN OR PRINTED

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Manufacturers of

IMPROVED ROGERS AND SPECIAL WET MACHINES

STANDARD WET MACHINES

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THE A. D. WOOD SAVEALL, THICKENER, WASHER AND WATER SCREEN

GLENS FALLS DECKER AND DECKER WASHER

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FILLER CLAYS

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50 CHURCH ST., NEW YORK

### Twines

(F. o. b. Mill)

| | | | |
|---|---|---|---|
| Cotton— | | | |
| B. C., 18 basis | .32 | @ | .34 |
| No. 1 | .22 | @ | .24 |
| No. 2 | .21 | @ | .22 |
| No. 3 | .19 | @ | .20 |
| A. Italian, 18 basis | .38 | @ | .39 |
| Finished Jute— | | | |
| Dark, 18 basis | .20½ | @ | .21 |
| Light, 18 basis | .22½ | @ | — |
| Jute Wrapping, 3-6 Ply— | | | |
| No. 1 | .14¾ | @ | — |
| No. 2 | .13¾ | @ | — |
| Tube Rope— | | | |
| 4-ply and larger | .10¼ | @ | — |
| Fine Tube Rope— | | | |
| 4-ply | .12¾ | @ | — |
| 3-ply | .13¾ | @ | — |
| 2-ply | .14¾ | @ | — |
| Paper Makers Twine | | | |
| Balls | .08¾ | @ | — |
| Box Twine, 2-3 ply | .09 | @ | .10 |
| Jute Rope | .11 | @ | .12 |
| Amer. Hemp, 6 | .29 | @ | .31 |
| Java Sisal— | | | |
| No. 1 Basis | .12 | @ | — |
| No. 2 Basis | .11¾ | @ | — |
| New Zealand Sisal | .11½ | @ | — |
| Sisal Lath Yarn— | | | |
| No. 1 | .14 | @ | .16 |
| No. 2 | .12 | @ | .14 |
| Manila Twine | .22½ | @ | .24½ |

## CHICAGO

### Paper

(F. o. b. Mill)

| | | | |
|---|---|---|---|
| Rag Bond | .30 | @ | .53¼ |
| Water Marked Sulphite Bond | .09 | @ | .12 |
| Sulphite Bond | .06¾ | @ | .11 |
| Superfine Writing | .18 | @ | .24 |
| No. 1 Fine Writing | .14 | @ | .18 |
| No. 2 Fine Writing | .12 | @ | .14 |
| No. 3 Fine Writing | .08½ | @ | .12 |
| No. 1 M. F. Book | .06½ | @ | .07¼ |
| No. 2 M. F. Book | .05¼ | @ | .06¼ |
| No. 1 S.&S.C. Book | .06¾ | @ | .07¾ |
| No. 2 S.&S.C. Book | .05¾ | @ | .06½ |
| Coated Book | .07½ | @ | .12 |
| Coated Label | .07½ | @ | .10 |
| No. 1 Manila | .04¼ | @ | .05¾ |
| No. 1 Fibre | .04¾ | @ | .05¼ |
| No. 2 Manila | .04¼ | @ | .04¾ |
| Butcher's Manila | .04 | @ | .04½ |
| No. 1 Kraft | 5.00 | @ | 5.50 |
| Southern Kraft | 3.75 | @ | 4.00 |
| No. 2 Kraft | 3.75 | @ | 4.00 |
| Wood Tag Boards | .04¼ | @ | .06¼ |
| Sulphite Screenings | .03 | @ | .03¼ |
| Manila Tissue | .07 | @ | .07¼ |
| White Tissue | .07¼ | @ | .07½ |

(Delivered Central Territory)

| | | | |
|---|---|---|---|
| News, per ton— | | | |
| Rolls, contract | 62.00 | @ | — |
| Sheets | 67.00 | @ | — |
| Boards, per ton— | | | |
| Plain Chip | 30.00 | @ | 35.00 |
| Solid News | 32.50 | @ | 37.50 |
| Manila Lined Chip | 40.00 | @ | 45.00 |
| Container Lined— | | | |
| 85 Test | 50.00 | @ | 55.00 |
| 100 Test | 55.00 | @ | 60.00 |

### Old Papers

(F. o. b. Chicago)

| | | | |
|---|---|---|---|
| Shavings— | | | |
| No. 1 Hard White | 2.35 | @ | 2.40 |
| White Env. Cuttings | — | @ | — |
| No. 1 Soft Shavings | 2.10 | @ | 2.15 |
| Ledger & Writings | .70 | @ | .75 |
| Solid Books | .75 | @ | .80 |
| Blanks | 1.60 | @ | 1.65 |
| Krafts | 1.25 | @ | 1.35 |
| New Kraft Cuts | 1.35 | @ | 1.45 |
| Manila Env. Cuts | 1.50 | @ | 1.55 |
| Ex. No. 1 Manila | 1.25 | @ | 1.30 |
| Print Manila | .40 | @ | .45 |
| Overissue News | .40 | @ | .45 |
| Old Newspapers— | | | |
| No. 1 | .35 | @ | .40 |
| No. 2 | .30 | @ | .35 |
| Mixed Papers— | | | |
| No. 1 | .28 | @ | .30 |
| No. 2 | .20 | @ | .25 |
| Roofing Stocks— | | | |
| No. 1 | 30.00 | @ | — |
| No. 2 | 28.00 | @ | — |

## PHILADELPHIA

### Paper

(F. o. b. Mill)

| | | | |
|---|---|---|---|
| Bonds | .05 | @ | .40 |
| Ledgers | .07 | @ | .40 |
| Writings— | | | |
| Superfine | .12 | @ | .18 |
| Extra fine | .16 | @ | .22 |
| Fine | .15 | @ | .26 |
| Fine, No. 2 | .13½ | @ | .25 |
| Fine, No. 3 | .08½ | @ | .20 |
| Book, M. F. | .05 | @ | .07 |
| Book, S. S. & C. | .05 | @ | .07½ |
| Book, Coated | .08 | @ | .16 |
| Coated Lithograph | .07 | @ | .11 |
| Label | .07 | @ | .11 |
| No. 1 Jute Manila | .07 | @ | .09 |
| Manila Sul., No. 1 | .03¼ | @ | .05½ |
| Manila No. 2 | .03 | @ | .04 |
| No. 1 Kraft | .05¼ | @ | .06 |
| No. 2 Kraft | .03½ | @ | .04 |
| Southern Kraft No. 1 | — | @ | .03¾ |
| Southern Kraft No. 2 | — | @ | .03¾ |
| Common Bogus | .03 | @ | .04 |

(Delivered Philadelphia)

| | | | |
|---|---|---|---|
| News Print Rolls | 62.00 | @ | — |
| Straw Board | 50.00 | @ | — |
| News Board | 32.50 | @ | — |
| Chip Board | 30.00 | @ | — |
| Wood Pulp Board | 85.00 | @ | 95.00 |
| Binder Boards— | | | |
| No. 1, per ton | 75.00 | @ | — |
| No. 2, per ton | 68.00 | @ | — |
| Carload lots | 66.00 | @ | 70.00 |
| Tarred Felts— | | | |
| Regular | 55.50 | @ | 57.00 |
| Slaters (per roll) | .84 | @ | .94 |
| Best Tarred, 1-ply (per roll) | 1.95 | @ | 2.10 |
| Best Tarred, 2-ply (per roll) | 1.50 | @ | 1.60 |
| Best Tarred, 3-ply | 2.00 | @ | 2.25 |

### Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

| | | | |
|---|---|---|---|
| Shirt Cuttings— | | | |
| New White, No. 1. | .06 | @ | .07 |
| New White, No. 2. | .05½ | @ | .06 |
| Light Silesias | .05 | @ | .05½ |
| Silesias, No. 1 | .06 | @ | .08 |
| Black Silesias, soft. | .05 | @ | — |
| New Unbleached | .06½ | @ | .07 |
| Washable, No. 1 | .03 | @ | .03½ |
| Blue Overall | .05 | @ | .05½ |
| Cottons—According to grades— | | | |
| Washable, No. 2 | .02 | @ | .02½ |
| New Blue | .02 | @ | .02½ |
| Fancy | .03½ | @ | — |
| New Black Soft | .03 | @ | .03½ |
| New Light Seconds | .01¾ | @ | .02 |
| New Dark Seconds | 1.85 | @ | 2.00 |
| Khaki Cuttings— | | | |
| No. 1 O. D. | .04½ | @ | .05 |
| No. 2 Mixed | .03½ | @ | .04 |
| Corduroy | .02½ | @ | .03 |
| New Canvas | .06½ | @ | .07 |
| New Black Mixed. | .03 | @ | .03½ |

### Domestic Rags (Old)

| | | | |
|---|---|---|---|
| White No. 1— | | | |
| Repacked | 3.50 | @ | 4.00 |
| Miscellaneous | 2.50 | @ | 3.00 |
| M. G. | 4.50 | @ | — |
| Thirds and Blues— | | | |
| Miscellaneous | 1.25 | @ | 1.50 |
| Repacked | 1.75 | @ | 2.00 |
| Black Stockings (Export) | 3.80 | @ | 4.00 |
| Roofing Stock— | | | |
| Foreign No. 1 | 1.15 | @ | 1.25 |
| Repacked | .80 | @ | .90 |

### Bagging

(F. o. b. Phila.)

| | | | |
|---|---|---|---|
| Gunny, No. 1— | | | |
| Foreign | 1.50 | @ | 1.60 |
| Domestic | 1.75 | @ | — |
| Manila Rope | 2.50 | @ | 2.75 |
| Sisal Rope | 1.25 | @ | 1.50 |
| Mixed Rope | 1.10 | @ | 1.25 |
| Scrap Burlaps— | | | |
| No. 1 | 1.50 | @ | 1.60 |
| No. 2 | 1.10 | @ | 1.20 |
| Wool Tares, heavy | 3.00 | @ | — |
| Mixed Strings | 1.15 | @ | 1.25 |
| No. 1 New Light Burlap | 2.50 | @ | 2.75 |
| New Burlap Cuttings | 2.00 | @ | 2.25 |

### Old Papers

(F. o. b. Phila.)

| | | | |
|---|---|---|---|
| Shavings— | | | |
| No. 1 Hard White | 2.50 | @ | 2.60 |
| No. 2 Hard White | 2.10 | @ | 2.25 |
| No. 1 Soft White | 2.15 | @ | 2.25 |
| No. 2 Soft White | 1.35 | @ | 1.50 |
| No. 1 Mixed | .80 | @ | .90 |
| No. 2 Mixed | .55 | @ | .65 |
| Solid Ledger Stock | 1.50 | @ | 1.60 |
| Writing Paper | 1.05 | @ | 1.25 |
| No. 1 Books, heavy | 1.00 | @ | 1.15 |
| No. 2 Books, light | .90 | @ | .95 |
| No. 1 New Manila | 2.15 | @ | 2.30 |
| No. 1 Old Manila | 1.40 | @ | 1.50 |
| Print Manila | .50 | @ | .60 |
| Container Manila | .45 | @ | .50 |
| Old Kraft | 1.15 | @ | 1.20 |
| Common Paper | .25 | @ | .30 |
| No. 1 Mixed Paper | .25 | @ | .30 |
| Straw Board, Chip | .35 | @ | .40 |
| Binders Board, Chip | .35 | @ | .45 |
| Corrugated Board | .50 | @ | .60 |
| Overissue News | .40 | @ | .45 |
| Old Newspaper | .25 | @ | .30 |

## BOSTON

### Paper

(F. o. b. Mill)

| | | | |
|---|---|---|---|
| Ledgers— | | | |
| Sulphite | .07½ | @ | .12½ |
| Rag Content | .15 | @ | .30 |
| All Rag | .38 | @ | .52½ |
| Bonds— | | | |
| Sulphite | .06½ | @ | .11½ |
| Rag content | .15 | @ | .30 |
| All rag | .36½ | @ | .65 |
| Writings | .06½ | @ | .20 |
| Superfines | .11 | @ | .31 |
| Book, Super | .06 | @ | .09 |
| Book, M. F. | .05½ | @ | .08½ |
| Book, Coated | .08½ | @ | .18 |
| Coated Litho | .09 | @ | .12 |
| Label | .09½ | @ | .15 |
| Jute Manila No. 1 | .11 | @ | .13 |
| Manila, Sul. No. 1 | .04¾ | @ | .06⅛ |
| Manila, Sul. No. 2 | .03¾ | @ | .04½ |
| No. 1 Kraft | .04½ | @ | .05½ |
| No. 2 Kraft | .03½ | @ | .04¼ |

(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Southern Kraft | .03½ | @ | .03¾ |

(F. o. b. destination in carload lots. f. o. b. mill in less than carload lots.)

| | | | |
|---|---|---|---|
| Common Bogus | .02 | @ | .02¾ |

(Delivered New England points)

| | | | |
|---|---|---|---|
| News Print, rolls | 61.50 | @ | — |
| Straw Board, rolls | .009 | — | @ 52.50 |
| Straw Board in Sheets, basis 35s to 70s | — | @ | 50.00 |
| Filled News Board | 32.50 | @ | — |
| Chip Board | 27.50 | @ | — |
| Chip Board (Creasing) | 32.50 | @ | — |
| Single Manila Lined Chip | 40.00 | @ | 45.00 |
| Single White, Patent Coated News Board— | | | |
| Binder, No. 1 | 60.00 | @ | 75.00 |
| Binder, No. 2 | 55.00 | @ | 65.00 |
| Wood Pulp Board | 75.00 | @ | 80.00 |
| Binder Boards | 67.50 | @ | 75.00 |

### Old Papers

(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Shavings— | | | |
| No. 1 Hard White | 3.25 | @ | 3.75 |
| No. 2 Hard White | 2.60 | @ | 2.90 |
| No. 1 Soft White | 2.25 | @ | 2.40 |
| No. 2 Mixed | .60 | @ | .65 |
| No. 1 Mixed | .90 | @ | 1.00 |
| Solid Ledger Books | 1.75 | @ | 2.00 |
| Overissue Ledger Stock | 1.35 | @ | 1.60 |
| Mixed Ledgers | 1.15 | @ | 1.30 |
| No. 1 Books, heavy | .75 | @ | .90 |
| No. 1 Books, light | .55 | @ | .70 |
| Crumpled Stitchless Book Stock | 1.00 | @ | 1.25 |
| Manila Env. Cuttings | 1.85 | @ | 2.00 |
| No. 1 Old Manila | — | @ | 1.00 |
| White Blank News | 1.50 | @ | 1.60 |
| Kraft No. 1 | — | @ | 1.10 |
| Manila | .80 | @ | .90 |
| No. 1 Mixed Paper | — | @ | .16 |
| Overissue News | — | @ | .40 |
| Old Newspapers | .25 | @ | .30 |
| Box Board, Chip | .16 | @ | .20 |
| Corrugated Boxes | .35 | @ | .45 |

### Bagging

(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Gunny No. 1— | | | |
| Foreign | — | @ | 1.80 |
| Domestic | 1.60 | @ | 1.70 |
| Manila Rope— | | | |
| Foreign | — | @ | 2.00 |
| Domestic | 2.50 | @ | — |
| Transmission Rope | 1.75 | @ | — |
| Mixed Strings | — | @ | .70 |
| Jute Rope | 1.25 | @ | — |
| Jute Carpet Threads | .90 | @ | 1.05 |
| Bleachery Burlap | — | @ | 3.25 |
| No. 1 Scrap Burlap | — | @ | 1.25 |
| Scrap Sisal | 1.40 | @ | 1.50 |
| Scrap Sisal for shredding | 1.50 | @ | 1.60 |
| Wool Tares, heavy | 1.30 | @ | — |
| New Burlap Cutting | 1.75 | @ | 2.00 |
| Australian Pouches | 2.50 | @ | — |
| Heavy Baling Bagging | — | @ | 1.75 |
| Paper Mill Bagging | .95 | @ | 1.10 |
| Bagging No. 2 | .50 | @ | — |
| No. 1 Burlap | — | @ | 3.50 |

### Domestic Rags (New)

(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Shirt Cuttings— | | | |
| New White No. 1. | .06½ | @ | .07 |
| New White No. 2. | — | @ | .06 |
| Silesias No. 1 | .06 | @ | .06¼ |
| New Black Silesias | .02½ | @ | .02¾ |
| New Unbleached | — | @ | .08 |
| Fancy | .04 | @ | .04½ |
| Washable | .04 | @ | .04½ |
| Cottons—According to grades— | | | |
| Blue Overalls | .05 | @ | .06 |
| New Black, soft | .04 | @ | .04¼ |
| Khaki Cuttings | .04 | @ | .04½ |
| O. D. Khaki | .04½ | @ | .05 |
| Corduroy | .03 | @ | .03½ |
| New Canvas | .08 | @ | .08½ |

### Domestic Rags (Old)

(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Canvas | .04½ | @ | — |
| White No. 1— | | | |
| Repacked | 4.75 | @ | 5.25 |
| Miscellaneous | — | @ | 4.00 |
| White No. 2— | | | |
| Repacked | .04½ | @ | .05 |
| Miscellaneous | .03½ | @ | .04 |
| Twos and Blues | 2.50 | @ | 2.75 |
| Thirds and Blues— | | | |
| Repacked | 1.60 | @ | 1.80 |
| Miscellaneous | 1.00 | @ | 1.20 |
| Black Stockings | 3.25 | @ | 3.50 |
| Roofing Stock— | | | |
| No. 1 | .75 | @ | .80 |
| No. 2 | .65 | @ | .70 |
| No. 3 | .50 | @ | .60 |

### Foreign Rags

(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Dark Cottons | — | @ | .75 |
| New No. 1 White Shirt Cuttings | 7.75 | @ | 8.00 |
| Dutch Blues | — | @ | 1.80 |
| New Checks & Blues | 4.00 | @ | 4.50 |
| Old Fustians | 1.65 | @ | 1.75 |
| Old Linsey Garments | .85 | @ | .95 |

## TORONTO

### Paper

(F. o. b. Mill)

| | | | |
|---|---|---|---|
| Bond— | | | |
| No. 1 Sulphite | .12½ | @ | — |
| No. 2 Sulphite | .09¾ | @ | — |
| No. 1 Colored | .13½ | @ | — |
| No. 2 Colored | .09½ | @ | .10½ |
| Ledgers (sulphite) | — | @ | — |
| Ledgers, No. 1 | .36 | @ | — |
| Ledgers, No. 2 | .27 | @ | — |
| Writing | .09½ | @ | .10 |
| Book— | | | |
| No. 1 M. F. (carloads) | 7.12½ | @ | 7.60 |
| No. 2 M. F. (carloads) | 6.90 | @ | 7.35 |
| No. 3 M. F. (carloads) | 6.65 | @ | 7.15 |
| No. 1 S. C. (carloads) | 7.60 | @ | 8.10 |
| No. 2 S. C. (carloads) | 7.35 | @ | 7.85 |
| No. 3 S. C. (carloads) | 7.12½ | @ | 7.60 |
| No. 4 S. C. (carloads) | 5.95 | @ | 6.40 |
| No. 1 Coated and Litho | 13.25 | @ | — |
| No. 2 Coated and Litho | 12.25 | @ | — |
| No. 3 Coated and Litho | 10.00 | @ | 11.50 |
| Coated tinted | 14.50 | @ | — |
| Wrapping— | | | |
| Rag Brown | 4.95 | @ | — |
| White Wrap | 5.25 | @ | — |
| "B" Manila | 5.00 | @ | — |
| No. 1 Manila | 5.40 | @ | — |
| Fiber | 5.40 | @ | — |
| Kraft, M. F. | 5.90 | @ | — |
| Kraft No. 2 | 5.40 | @ | — |

(Delivered Toronto)

| | | | |
|---|---|---|---|
| News, per ton— | | | |
| Rolls (contract) | 61.50 | @ | 62.00 |
| Sheets | 67.00 | @ | — |

### Pulp

(F. o. b. Mill)

| | | | |
|---|---|---|---|
| Ground Wood | 30.00 | @ | 32.00 |
| Sulphite easy bleaching | 50.00 | @ | — |
| Sulphite, news grade | 70.00 | @ | — |
| Sulphite, bleached | 72.50 | @ | 75.00 |
| Sulphate | 60.00 | @ | — |

### Old Waste Paper

(In carload lots, f. o. b. Toronto)

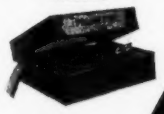
| | | | |
|---|---|---|---|
| Shavings— | | | |
| White Env. Cut | 2.80 | @ | — |
| Soft White | 2.60 | @ | — |
| White Blk. News | 1.50 | @ | — |
| Book and Ledger— | | | |
| Flat Magazine and Book Stock (old) | 1.10 | @ | — |
| Light and Crumpled Book Stock | 1.20 | @ | — |
| Ledgers and Writings | — | @ | — |
| Manilas— | | | |
| New Manila Cut | 1.50 | @ | — |
| Printed Manilas | .80 | @ | — |
| Kraft | 1.90 | @ | — |
| News and Scrap— | | | |
| Strictly Overissue | .70 | @ | — |
| Strictly Folded | .70 | @ | — |
| No. 1 Mixed Paper | .60 | @ | — |

### Domestic Rags

(Price to mills, f. o. b. Toronto)

| | | | |
|---|---|---|---|
| No. 1 White Shirt Cuttings | .09½ | @ | .10 |
| Fancy Shirt Cuttings | .06 | @ | .06¼ |

PALMETTO PACKING



for STEAM (High pressure superheat) Compressed Air

SQUARE PALCO PLAITED PACKING

for HYDRAULIC PRESSURES

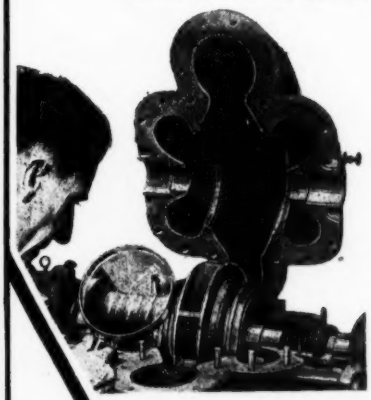
The Fluid you pump should determine the packing you use

THE packing-bearing surface of the shaft of the high-speed centrifugal pump must be kept under constant lubrication to avoid the friction that wears the shaft and destroys the packing.

To retain the necessary lubricant to avoid friction, a packing must be lubricated with a compound that will resist the washing-out tendency of various chemicals and distillates of petroleum.

NO ONE LUBRICANT WILL RESIST ALL FLUIDS

*These packings will give long, economical service against the various fluids as stated.*



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for GASOLINE, NAPHTHA, and other PETROLEUM DISTILLATES

PELRO PACKING

for CAUSTIC SOD, SIMILAR CHEMICALS and AMMONIA

CUTNO PACKING

PAPER TRADE JOURNAL

ESTABLISHED 1872

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

FIFTY-NINTH YEAR

Published Every Thursday by the
LOCKWOOD TRADE JOURNAL CO., Inc.

GEO. S. MACDONALD, President; J. BANNINGA, Sec.-Treas.

Published at 34 No. Crystal St., East Stroudsburg, Pa.
Executive and Editorial Offices: 10 East 39th Street, New York
Chicago Office: 123 West Madison St.

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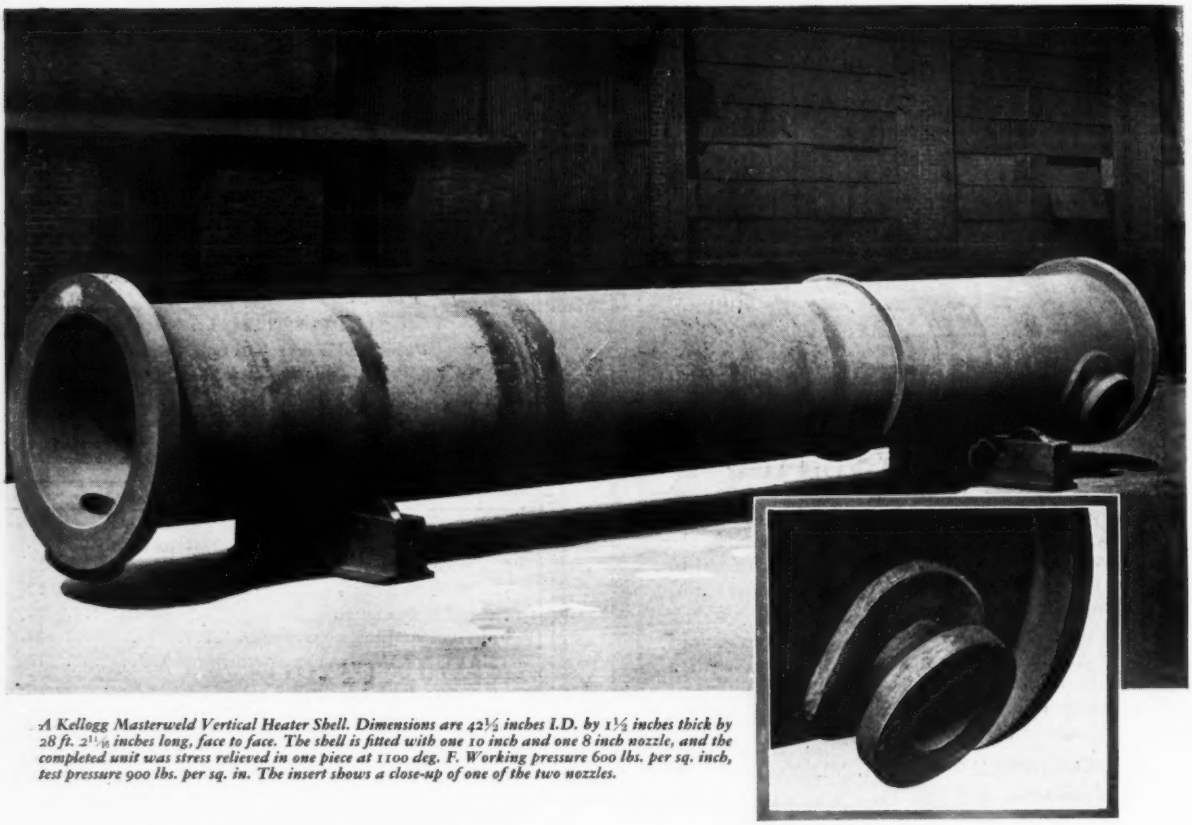

*A Kellogg Masterweld Vertical Heater Shell. Dimensions are 42½ inches I.D. by 1½ inches thick by 28 ft. 2 11/16 inches long, face to face. The shell is fitted with one 10 inch and one 8 inch nozzle, and the completed unit was stress relieved in one piece at 1100 deg. F. Working pressure 600 lbs. per sq. inch, test pressure 900 lbs. per sq. in. The insert shows a close-up of one of the two nozzles.*

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